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A STUDY OF EMISSIONS FROM LIGHT DUTY VEHICLES IN SIX CITIES

Automotive Environmental Systems, Incorporated

Prepared for:

Environmental Protection Agency

March 1973

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A STUDY OF EMISSIONS FROM LIGHT DUTY VEHICLES IN SIX CITIES

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U.S. ENVIRONMENTAL PROTECTION AGENCY

Office of Air and Water Programs

Office of Mobile Source Air Pollution Control

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A comprehensive study of emissions from light duty vehicles was performed in six cities in the U. S. to determine the contribution of air pollution by the vehicle population. A representative sample of 1,020 vehicles of the 1957 and 1971 model years were tested to determine the levels of hydrocarbon, carbon monoxide, carbon dioxide and oxides of nitrogen exhaust emissions. Evaporative emission tests using the SHED technique were performed on a subsample of vehicles in Los Angeles and Denver. Vehicle exhaust emission test procedures included the 1972 and 1975 Federal Test Procedures, steady state tests at idle, 15 mph, 30mph, 45mph, and 60 mph as well as the 125-second Federal Short Cycle. Also included was the measurement of effluents during 32 acceleration and deceleration modes between all possible combinations of steady state conditions. All vehicle exhaust emissions which were measured by the constant volume sampling technique were of similar magnitude among all cities except Denver, Colorado. The report discusses levels of specific pollutants at varying; altitudes, auto size, manufacturers, and model years. Comprehensive statistical analyses of emission results by city, manufacturer, make, model year and engine class are presented in the final report.

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Prepared by

Automotive Environmental Systems, Inc.
7300 Bolsa Avenue
Westminster, California 92683

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EPA Project Officer: James M. Marzen

Prepared for

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March 1973

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Publication No. APTD-1497

ABSTRACT

A comprehensive study of emissions from light duty vehicles was performed in six cities of the United States to determine the contribution to atmospheric pollution by the vehicle population. Under sponsorship of the Office of Air Programs, United States Environmental Protection Agency, over 1,000 vehicles of the 1957 through 1971 model years were tested to determine the levels of hydrocarbon, carbon monoxide, carbon dioxide and oxides of nitrogen exhaust emissions. Evaporative emission tests using the SHED technique were performed on a subsample of vehicles in Los Angeles and Denver. Vehicle exhaust emission test procedures included the 1972 and 1975 Federal Test Procedures, steady state tests at idle, 15 mph, 30 mph, 45 mph, and 60 mph as well as the 125-second Federal Short Cycle. Also included was the measurement of effluents during 32 acceleration and deceleration modes between all possible combinations of the steady state conditions. These modes, combined into an acceleration/deceleration sequence, provided information relating to mass emissions from the various accelerations and decelerations encountered by the motoring public in normal driving. All vehicle exhaust emissions, which were measured by the constant volume sampling technique, were, on the average, of similar magnitude among all cities except Denver, Colorado. Carbon monoxide and hydrocarbon effluents were significantly higher at high altitude, but oxides of nitrogen were significantly lower. Relatively small differences in average hydrocarbon levels among manufacturers were obtained, although compact and other small vehicles showed lower emission values. Greater differences in carbon monoxide, carbon dioxide and oxides of nitrogen were evident among manufacturers. The 1968 through 1971 model year vehicles, which were subject to Federal exhaust emission controls, exhibited lower mean hydrocarbon and carbon monoxide levels than the 1957 through 1967 model year vehicles, although oxides of nitrogen levels were higher from the new, controlled vehicles. Hydrocarbon evaporative emissions were over twice as high in Denver as Los Angeles. Comprehensive statistical analyses of emission results by city, manufacturer, make, model year and engine class are presented in the final report.

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SUMMARY OF RESULTS

Exhaust emission tests in accordance with the 1972 and 1975 Federal Test Procedures were performed on a representative sample of 1,020 light duty, 1957 through 1971 model year vehicles in the United States. Hydrocarbons, carbon monoxide, carbon dioxide, and oxides of nitrogen were measured using the constant volume sampling technique. The results of the test program, presented in grams of effluent per vehicle mile, are summarized by manufacturer, by city and by model year in Table I. Differences in carbon monoxide, carbon dioxide and oxides of nitrogen levels are evident among manufacturers, although hydrocarbon levels are relatively uniform. Significant differences in hydrocarbon, carbon monoxide and oxides of nitrogen levels exist between Denver and the other five cities. Hydrocarbon and carbon monoxide levels from the 1968 through 1971 vehicles, which were subject to Federal exhaust emission controls, are significantly lower than those of the uncontrolled 1957 through 1967 vehicles, although oxides of nitrogen are higher.

Effluents by city for the steady state test conditions and for the Federal Short Cycle are presented in Table II. Carbon monoxide and hydrocarbon emission levels for 30 mph, 45 mph and 60 mph are relatively constant for each city, although differences do appear among the cities. Carbon dioxide and oxides of nitrogen greatly increase from 30 mph to 60 mph. Emission levels from idle, 15 mph cruise and the Federal Short Cycle appear to be significantly different from the other steady state conditions. As with the 1972 and 1975 Federal test results, mean vehicle emission levels for hydrocarbons and carbon monoxide are consistently higher for Denver vehicles and oxides of nitrogen are significantly lower.

Evaporative emission results obtained by the SHED technique are presented in Table III for the Los Angeles and Denver sample. Average evaporative emission levels for both the diurnal loss and hot soak loss tests are over twice as high in Denver. Evaporative emission results are based on a smaller vehicle sample for both cities.

TABLE I

SUMMARY OF RESULTS
FEDERAL DRIVING SCHEDULES
VEHICLE EXHAUST EMISSIONS IN GRAMS PER VEHICLE MILE

By Manufacturer Excluding Denver	Number of Tests	Hydrocarbons		Carbon Monoxide		Carbon Dioxide		Oxides of Nitrogen[3]	
		1972[1]	1975[2]	1972	1975	1972	1975	1972	1975
American Motors	31	6.46	5.87	70.0	65.1	447.3	436.4	3.72	3.72
Chrysler Corp.	117	7.24	6.22	90.9	76.1	518.9	512.0	4.39	4.65
Ford Motors	212	7.48	6.83	75.0	66.4	518.4	504.5	4.37	4.47
General Motors	418	7.76	7.02	86.7	77.3	550.1	535.7	3.99	4.03
Volkswagen	60	7.76	7.32	58.9	56.1	285.1	281.9	2.57	2.49
By City									
Los Angeles	175	8.28	7.46	86.48	74.44	526.99	515.75	3.57	3.61
Denver	169	9.79	8.59	123.88	112.11	476.31	460.09	2.26	2.23
Chicago	169	7.58	6.83	74.99	66.37	483.86	475.75	3.56	3.65
Houston	169	7.56	6.90	88.77	82.14	537.87	520.71	4.34	4.35
St. Louis	169	7.62	6.91	83.75	74.81	482.21	469.57	3.63	3.72
Washington,D.C.	169	6.60	5.94	71.66	61.87	530.26	517.80	5.18	5.31
All Cities	1020	7.91	7.11	88.24	78.60	506.37	493.41	3.75	3.81
All Except Denver	851	7.53	6.81	81.17	71.94	512.34	500.03	4.05	4.12
By Model Year, Excluding Denver									
1957 - 1962	138	9.18	8.51	84.45	79.7	479.6	468.3	4.16	4.13
1963 - 1967	353	9.53	8.64	98.1	87.5	472.3	463.2	3.43	3.36
1968 - 1971	360	4.96	4.37	63.5	53.9	573.6	556.7	4.81	4.92

1 1972 Federal Test Procedure results using sample and background bags for each of cold transient and cold stabilized portions.

2 1975 Federal Test Procedure results using sample and background bags for each of cold transient, cold stabilized and hot transient portions.

3 NO_x corrected for humidity.

TABLE II

SUMMARY OF RESULTS
STEADY STATE TESTS AND FEDERAL SHORT CYCLE
VEHICLE EXHAUST EMISSIONS IN GRAMS PER VEHICLE MILE[1]

CITY	EFFLUENT	IDLE	15 mph	30 mph	45 mph	60 mph	FSC[2]
Los Angeles	HC	1.45	5.28	3.09	2.91	2.60	5.69
	CO	17.02	69.11	29.50	24.60	25.51	48.53
	CO_2	72.32	409.53	333.12	357.90	372.47	438.48
	NO_x	0.08	0.51	1.69	3.78	5.51	3.10
Denver	HC	1.47	6.06	3.74	3.94	3.87	7.07
	CO	17.20	86.49	52.13	56.43	71.13	94.68
	CO_2	60.54	345.65	297.92	330.09	368.91	348.85
	NO_x	0.12	0.83	1.53	3.07	4.52	2.13
Chicago	HC	1.30	5.47	3.48	3.59	3.62	5.74
	CO	15.49	66.57	29.77	30.53	32.63	59.74
	CO_2	63.85	358.70	318.61	357.65	417.11	392.28
	NO_x	0.10	0.87	2.36	4.37	6.26	3.42
Houston	HC	1.50	5.68	3.02	2.83	2.47	5.52
	CO	18.74	77.29	35.11	32.38	31.71	63.16
	CO_2	76.13	391.06	318.01	356.13	404.79	417.03
	NO_x	0.14	0.83	1.49	3.47	5.70	2.83
St. Louis	HC	1.33	4.90	2.76	2.58	2.67	5.28
	CO	16.43	67.68	29.54	26.13	26.97	56.43
	CO_2	64.28	334.24	301.64	315.26	362.26	378.28
	NO_x	0.08	0.53	1.57	3.38	5.43	3.10
Washington	HC	1.12	4.23	2.59	2.57	2.88	4.46
	CO	13.25	56.10	26.19	25.40	25.79	48.11
	CO_2	65.04	380.44	343.54	390.83	452.50	417.79
	NO_x	0.13	1.04	2.88	6.04	8.90	4.23
All Except Denver	HC	1.34	5.11	2.99	2.90	2.85	5.34
	CO	16.19	67.36	30.02	27.79	28.50	55.15
	CO_2	68.35	374.23	323.03	355.55	401.60	408.96
	NO_x	0.11	0.75	2.00	4.21	6.35	3.34

1. Idle results in Grams per Minute. NO_x Not Corrected for Humidity.
2. FSC - Federal Short Cycle.

TABLE III

SUMMARY OF RESULTS
VEHICLE EVAPORATIVE EMISSIONS IN GRAMS PER VEHICLE

City	Number of Tests *	Hydrocarbons		
		Diurnal Losses	Hot Soak Losses	Combined Losses
Los Angeles	125	23.53	13.75	37.28
Denver	20	47.20	34.78	81.98

*Excluding Replicates

1. INTRODUCTION

Exhaust and evaporative emissions from gasoline powered light duty vehicles contribute significantly to air pollution in the United States. The impact of the automobile as a source of polluting effluents is highly dependent not only upon characteristics of the vehicles, but upon vehicle population density and modes of operation which are strongly influenced by societal congestion. All urban areas in the United States with population levels of a million or more have serious air pollution problems--smaller areas also have some amount of poor air quality.

The exact portion of the nationwide inventory of air pollutants contributed by the automobile is not accurately known. Estimates for carbon monoxide and hydrocarbon effluents from vehicles range from thirty to eighty percent, depending upon the source of information. Oxides of nitrogen effluents contributed by automobiles are estimated at twenty to forty percent. One fact is certain, that any amount of pollutants near these levels is a serious threat to life and property in this country.

The United States Environmental Protection Agency and its predecessor organization, the National Air Pollution Control Administration, have recognized the problem of vehicle pollution, and have assigned a high priority to the control and measurement of emissions from light duty vehicles and trucks. In addition to the stringent vehicle emission control requirements imposed upon new vehicle manufacturers, are the Environmental Protection Agency's ongoing efforts to develop accurate emission factors for use in calculation of the exact contribution to atmospheric pollution by light duty vehicles. Once these factors are known and the proper segment of the air pollution inventory assigned to motor vehicles, effectiveness of control strategies can be estimated and projected. Acquisition of such information on a continuing basis will assist in evaluating control strategies in perspective with control results. This information will enable the prediction or incipient detection of serious air pollution episodes in highly populated areas. Also, emission factor data will aid in quantifying for the American people, the urgency of the vehicle pollution problem in comparison with the many other environmental problems besetting society today.

Until recently, accurate means of assessing the vehicle's role in the pollution inventory were not widely available. Older techniques, while able to define emission characteristics of the vehicle, could not be used to relate these characteristics to the true amount of pollutants entering the atmosphere. New procedures more representative of actual vehicle operation have been developed by the Environmental Protection Agency. New instruments and techniques for sampling exhaust emissions can now provide realistic and accurate data concerning automotive pollutants.

Hydrocarbons, carbon monoxide and oxides of nitrogen from the exhaust of internal combustion engines and unburned hydrocarbons evaporating from the vehicle fuel system are among the pollutants for which quantitative data are sought. Currently, over 95 percent of the cars on the road in the United States are represented by the 1957 through 1971 model years. The motoring public quite naturally tends to drive the newer and more populous vehicles much more than the older, or perhaps, second cars. However, the older, uncontrolled vehicles may be responsible for greater than 95% of total automotive pollutants because of their higher emission levels.

Therefore, it is desirable to test a statistically representative sample of vehicles in the United States to accurately assess the vehicles' contribution to atmospheric pollution, and to develop the much needed emission factors relating to vehicular pollution. Furthermore, it is desirable that light duty vehicle emissions information be obtained from diverse areas in the United States, to account for the effects upon vehicle emissions of various topographic, meterologic or demographic properties.

Consistent with the need to develop comprehensive information about vehicle pollution in the United States, the Environmental Protection Agency has awarded a "Study of Emissions from Light Duty Vehicles in Six Cities" to Automotive Environmental Systems, Inc. The results of the program are presented in this final report.

2. TECHNICAL DISCUSSION

2.1 PROGRAM OBJECTIVE

The overall objective of "A Study of Emissions from Light Duty Vehicles in Six Cities" is to gather accurate exhaust and evaporative emissions data which are representative of the nation's vehicle population. These data will be used to develop average emission factors which precisely define emission characteristics from light duty vehicles in the United States. The average emissions factors are to be used by the National Inventory of Air Pollution Emission and Control Branch (NIAPEC) of the United States Environmental Protection Agency to determine the contribution of light duty vehicles to the national air pollution inventory. These factors will enable NIAPEC to project vehicle emission levels in metropolitan areas which may be used to anticipate pollution episodes or assist in the evaluation of pollution control strategies such as transportation control.

2.2 PROGRAM DESIGN

In support of the broad objective of this program to accumulate evaporative and exhaust emission data which will provide an accurate measure of the automobile's contribution to the nation's emissions inventory, several subordinate objectives had to be fulfilled. The first and perhaps most important was to insure that the sample from which vehicle emissions data were obtained was statistically representative of the nationwide population. Demographic, topographic, and meteorologic considerations dictated that in order to obtain a representative sample in the United States, the sample had to be extracted from disparate areas in the United States. Since much of the concern of vehicle caused pollution stems from the metropolitan areas, six disparate areas were chosen for the program. These areas are representative of some of the most populated areas in the United States as well as diverse areas in terms of climate and terrain. Los Angeles represents the temperate, warm and sunny western portion of the United States, and Denver at an altitude of one mile with rather mountainous terrain is representative of mountain metropolitan areas. Chicago, representing the Great Lakes and northeast region of the United States is typical of cities with long winter seasons. St. Louis and Houston are typical of extremes in the Great Plains area of the United States with St. Louis experiencing rather moderate winters and Houston normally having very warm but humid climate. Washington, D. C. is similar to many cities on the eastern seaboard yet differs sufficiently from those in the northeast such as Chicago. The need for multiple area testing was strengthened by the diverse vehicle maintenance practices, driving habits, and operational characteristics of vehicles in these atmospheric areas as well as potential differences in the metropolitan vehicle populations.

A rather important consideration in support of the overall program objective was that the proper selection of test vehicles be made. Over 95% of the vehicle population consists of the 1957-1971 model years. Therefore, these vehicle model years were selected to be tested in this program. In any statistical sampling program, there is always concern about the statistical validity of the sample. A careful delineation of the various vehicle makes, engine sizes, and engine transmission combinations was obtained, and a desired national test vehicle sample was developed.

Another important consideration in support of the program objective was the orderly accumulation of precise test data. Therefore, precision test equipment, well defined procedures, and rigorous qualification, calibration and cross check techniques were used in the program.

In order to accumulate accurate exhaust and evaporative emission test data from the vehicle sample, techniques which measure the true polluting characteristics of vehicles were required. The constant volume sampling technique as specified in the 1972 and 1975 Federal Test Procedures was used to measure the pollution characteristics of the test vehicles. In addition to accumulating information by these techniques, test data on other vehicle operating conditions such as idle, steady state and various typical accelerations and decelerations were required by the contract.

The evaporative emission test procedure used for testing in Los Angeles and Denver had to be applicable to both the controlled and uncontrolled vehicles. The Sealed Housing for Evaporative Determinations (SHED) technique was used for this program. This technique consists of placing the car in an enclosure and measuring the concentration of evaporated hydrocarbons in the atmosphere within the enclosure.

2.3 TEST VEHICLE PROCUREMENT

2.3.1 Selection Procedure

The objective of the test vehicle procurement task was to obtain test vehicles of the appropriate make, model and age which are representative of the nation's vehicle population. To satisfy this goal, AESi developed a selection procedure for choosing the vehicles for the program test fleet. The selection procedure is depicted in Figure 2.3-1.

For each of the six cities, an nth-name sample of 1957 through 1971 automobiles registered in the test locations (as defined by postal zip codes) was obtained from R. L. Polk and Company. The nth-name sampling technique used by Polk results in the selection of a random sample by selecting the vehicles whose owners reside at every nth street address within the sample area, where:

$$n = \frac{X}{Y}$$; where X = Total number of vehicle owners per city
and Y = Sample size

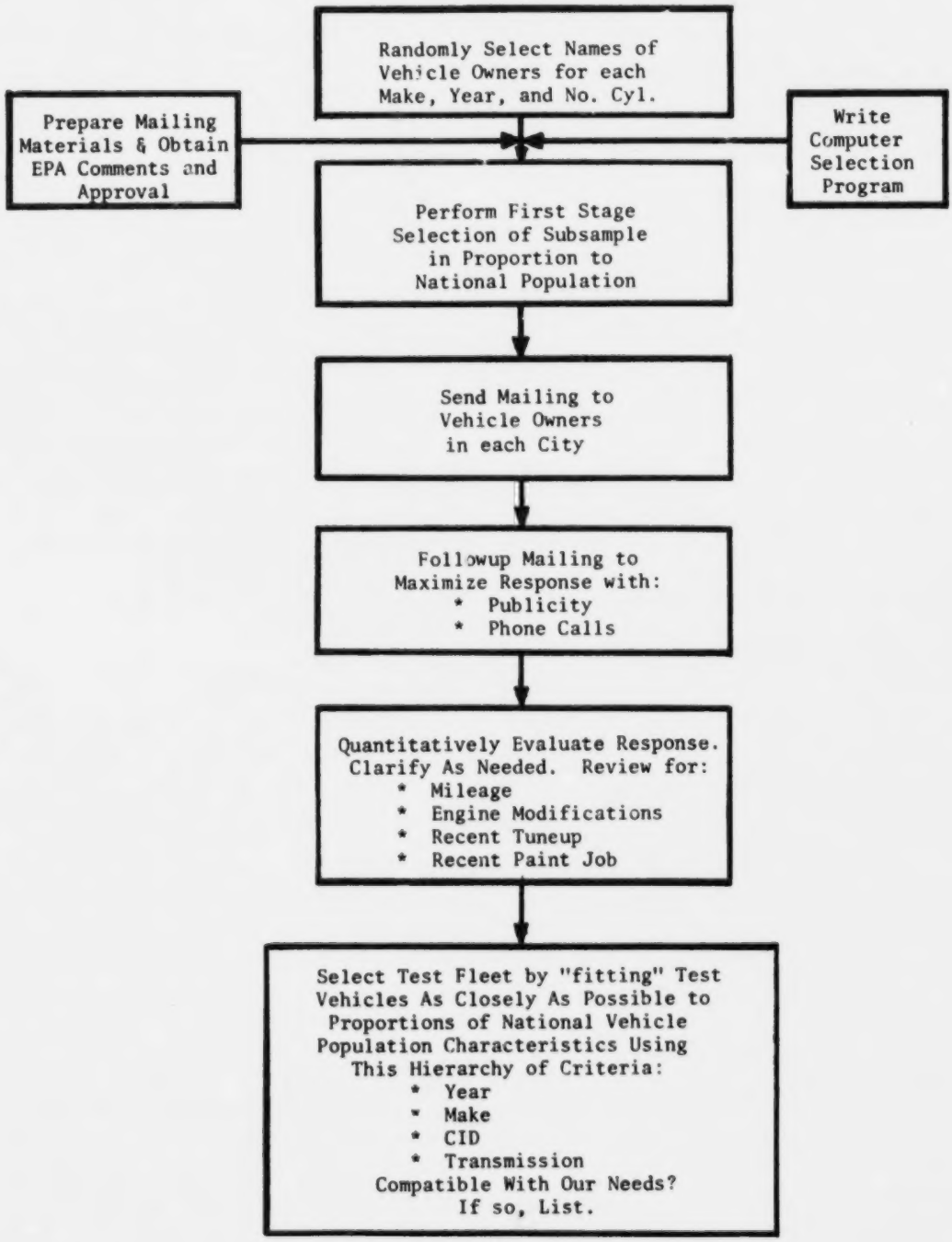
The randomly selected names for each city were submitted to AESi on magnetic tape.

A subsample of vehicles which best fit the nation's vehicle population profile of make, model year, and number of engine cylinders, was selected for each of the six cities. As the program progressed, statistics concerning vehicles actually tested were used to continually modify the selection to maximize its conformance with the national vehicle population profile. The subsample as selected by the computer was printed out in the format shown in Figure 2.3-2.

A mailing consisting of a letter, an informative brochure, and a postage-paid return card as shown in Figures 2.3-3, 2.3-4 and 2.3-5 was sent to each of the vehicle owners selected in the subsample. The aura of "junk mail" was minimized by typing names and addresses of the selected vehicle owners on the letters and envelopes. In St. Louis, labels printed by the computer were used rather than personalized envelopes to determine whether the response level would be affected by this strategy.

FIGURE 2.3-1

FLOW DIAGRAM OF TEST VEHICLE SELECTION PROCEDURE



No.	NAME	ADDRESS	YR	MAKE	CYL.
30	MR. J M BECMAN	57 APACHE ST WHEATON IL 60187	69	VOLKS	-
31	MR. R E BECK	1023 FRANKLIN DR FRANKLIN PARK IL 60131	67	BUICK	8
33	MR. E K CHARD	121 FRANCES LA PARK RIDGE IL 60068	62	FORD	8
34	MR. W A RICHT	18W13 STANDISH RD VILLA PARK IL 60181	69	DODGE	8
35	MR. A H BICKER	962 IVANHOE LA FRANKLIN PARK IL 60176	68	CHEVY	8
36	MR. T E MCDONNA	4 ADAM CT ADDISON IL 60101	67	PONTI	8
37	MR. R M PODHAJA	66 BEAUMONT DES PLAINES IL 60016	65	FORD	8
38	MR. F G ANDRE	30 CHARLES ST MELROSE PARK IL 60164	63	OLDS	8
39	MISS D V ANDER	60 CHARRING CRS RD ARLINGTON HTS IL 60007	64	OLDS	8
40	MR. R G ANDER	I SHANDON LA ARLINGTON HTS IL 60008	67	FORD	8
41	MR. R A ANDERS	151 THAYER ST MT PROSPECT IL 60056	70	OLDS	8
42	MISS L M ROD	20 THAMES ST PARK RIDGE IL 60068	71	CHEVY	8
43	MISS B J DRY	816 GRAND LA RIVER GROVE IL 60171	70	PLYM	6
44	MR. R C ANDERSON	471 GRACE DR FRANKLIN PARK IL 60176	65	CHEVY	8
45	MR. K B ANDERS	12 STANDONSON RD ROSELLE IL 60172	66	CHEVY	8
46	MR. J GOETZ	80 SWAIN CR ELMHURST, IL 60126	66	PLYM	6
47	MR. R F GEEGAL	430 PEACOCK RD ARLINGTON HTS IL 60008	65	CHEVY	8
48	MR. M B ERNST	78 LEAHY DR DES PLAINES IL 60016	70	FORD	8

FIGURE 2.3-2

AESi
AUTOMOTIVE ENVIRONMENTAL SYSTEMS, INC. ■ 3272 NORTH E STREET, SAN BERNARDINO, CALIFORNIA 92405 ■ PHONE 714 882-1753
Reply To:
9115 Medill Avenue
Franklin Park, Illinois 60131
312-455-7188

Mr. K. B. Anders
12 Stand Street
Roselle, Illinois 60172

Dear Mr. Anders:

You may be able to make an important contribution towards controlling the nation's serious air pollution problem and receive a $25 United States Clean Air Savings Bond for your efforts!

As you may have read, the Federal Environmental Protection Agency is conducting an important nationwide vehicle testing program to measure pollutants emitted by the nation's automobile population. Automotive Environmental Systems, Inc., has been selected by the Environmental Protection Agency to perform this program, which will begin in Chicago very shortly. We are writing to you because we would like to consider your vehicle as a candidate for testing in this program.

If your car meets the requirements of mileage, engine characteristics, etc., and is selected for the program, we will need it for about 24 hours in our laboratory, where it will be tested under simulated normal driving conditions. No unusual operations will be performed, and absolutely no adjustments will be made to the vehicle. Your car will be fully insured while in our possession. In return for your assistance, we have been authorized by the Environmental Protection Agency to award a $25 Clean Air Savings Bond to each participant whose car is tested for this program. In addition, if you wish, we will provide you with a late model, fully insured loan car for the full period that your car is being tested.

We know you will want to be a part of a project so important to our environment. Please fill out and return the enclosed postage paid card and we will contact you shortly to obtain any additional required information, and to schedule your car for testing, if it is selected for the program.

Very truly yours,

M. Van Loan
Vice President

MVL:slv

FIGURE 2.3-3

AESi

AUTOMOTIVE ENVIRONMENTAL SYSTEMS, INC.

FIGURE 2.3-4

10

QUESTIONS AND ANSWERS CONCERNING THE SIX CITIES
STUDY OF EMISSIONS FROM LIGHT-DUTY VEHICLES

Sponsored by the Environmental Protection Agency
of the U.S. Government
Performed by Automotive Environmental Systems, Inc.
Contract No. 68-04-0042

1. WHAT IS THE SIX CITIES PROGRAM?

The Six Cities Program is a major nationwide vehicle pollution testing program sponsored by the Environmental Protection Agency of the U.S. Government and is being performed by Automotive Environmental Systems, Inc. More than 1,000 consumer-owned automobiles will be tested across the nation using the latest Federal procedures for vehicle pollution testing. In addition to making an extremely important contribution to the nation's fight against air pollution, volunteers whose cars are tested will receive a $25 U.S. Clean Air Savings Bond.

2. WHAT IS THE OBJECTIVE OF THE PROGRAM?

The broad objective of the program is to develop meaningful data and information concerning pollution characteristics of a spectrum of 1957 through 1971 model vehicles. This data will then be utilized to determine the contributions to atmospheric pollution by automobiles in various sections of the country under many different conditions.

3. HOW WILL THIS OBJECTIVE BE MET?

The data and information sought will be developed by selecting a representative sample of consumer owned vehicles and testing these vehicles in AESi emissions testing laboratories in accordance with a uniform procedure prescribed by EPA. This procedure involves operating a vehicle under simulated highway conditions in our laboratory for approximately forty minutes in a series of mild accelerations, decelerations, cruises, and idles. While the vehicle operates, exhaust gases are extracted and analyzed. In addition, some of the vehicles are tested to determine the level of evaporative emissions emanating from the carburetor and gas tank. Absolutely no modifications, adjustments or unusual operations are performed with the car at any time! At the completion of the program, the data from the individual tests will be consolidated and analyzed for the entire program.

4. IS THE PROGRAM REALLY WORTHWHILE?

Air pollution is an urgent national problem of the highest priority, and the automobile is a major source of air pollution. To evaluate the effectiveness of action taken previously to control the problem and to best define what additional action must be taken in the future, the contribution of automobiles to atmospheric pollution under varying conditions must be clearly defined. This program will provide such information, and as such, represents a major step in controlling the nation's air pollution problem.

5. WHAT ARE THE DETAILS OF PARTICIPATING?

Based upon the year, make, model and number of cylinders of their cars, vehicles owners are selected and contacted by mail and asked to participate in the program. These persons are requested to contact AESi, either by returning a postage paid card or by telephoning AESi, to provide certain additional information concerning their cars, such as transmission type, number of barrels of carburetor, cubic inch displacement of the engine, and particulars concerning the maintenance of the vehicle. Based upon all of the information available, a final selection of participants in the program will be made, and these participants will be contacted and scheduled for testing at a time convenient to them.

6. WHY SHOULD PEOPLE VOLUNTEER THEIR CARS FOR TESTING?

To satisfy the program's objectives, it is imperative that a truly representative cross section of American consumers volunteer their cars for testing. If we are to achieve this desired cross section, the support of everyone contacted is most important. Every non-participant represents a potential bias in the conclusions that we hope to derive from the program. The program represents one of the few opportunities that an individual may make an important and direct contribution to the nation's fight against air pollution.

As an added incentive to encourage people to participate by volunteering their vehicles for testing, the Environmental Protection Agency has authorized AESi to award a $25 U.S. Clean Air Savings Bond to each person whose vehicle is tested.

Once again, it should be emphasized that this program represents one of the few opportunities that an individual can make an important and direct contribution towards controlling the nation's air pollution problem. The participation of all persons who are asked to volunteer their vehicles is extremely important.

FIRST CLASS
Permit No. 1471
San Bernardino
Ca.

FILL OUT, TEAR OFF
AND RETURN
POSTCARD TODAY!

BUSINESS REPLY MAIL
No Postage Stamp Necessary If Mailed In The United States

Postage will be paid by

AUTOMOTIVE ENVIRONMENTAL SYSTEMS, INC.
Vehicle Emissions Testing Laboratory
10723 Indianhead Blvd.
St. Louis, Missouri 63132

Yes, I am willing to volunteer my car for pollution testing_____ .
Make of car _____ .
My car's engine displacement is _____ cubic inches.
Serial Number _____ .
Carburetor: 1 barrel _____ 2 barrel _____
4 barrel _____ Fuel Inj. _____
Transmission: Automatic ____ Manual ____
Current mileage on my car is _____ .

FILL IN IF YOU HAVE THIS INFORMATION.

Vol. No. _____

Name _____ Phone No. _____
PLEASE PRINT
Street No. _____ Best time
City _____ Zip Code _____ to Call _____

COMPANY USE ONLY

FILL OUT, TEAR OFF
AND RETURN
POSTCARD TODAY!

FIGURE 2.3-5

Concurrent with the mailing, AESi procurement specialists obtained the telephone numbers of all selected vehicle owners whose numbers were listed. Approximately one week after the mailing, AESi procurement specialists began to call and encourage all selected vehicle owners with listed telephone numbers to participate in the program. In some cases, selected vehicle owners were visited personally by the procurement specialists to obtain their cooperation. Also, concurrent with the mailings, local newspapers and selected special interest groups such as the TB and Health Association were alerted of the program and encouraged to publicize the program with the objective of encouraging selected vehicle owners to whom the mailings had been sent to submit the postage-paid cards to AESi.

After maximizing the response to the mailings, all selected vehicle owners who were willing to participate in the program were listed and resubmitted for a second level computerized selection. Based upon the additional vehicle parameters of transmission type and cubic inch displacement of the engine, as well as the original parameters of make, model year, and number of cylinders, the computer selected from the candidates those vehicles which best conformed to the national vehicle population profile, and listed all valid candidates in the format shown in Figure 2.3-6. The code listed at the left of Figure 2.3-6 indicates the extent to which each vehicle conforms to the projected test fleet profile. Identification of the code is as follows:

11 conforms perfectly to profile
12 conforms to profile except for engine displacement
13 conforms to profile except for transmission type
21 conforms perfectly to profile but is an extra candidate and is to be retained as a spare

In addition to the conformity ranking of candidate vehicles, the computer also indicated any vehicles which were desired but not obtained in the procurement activity for each city. This enabled the procurement specialist to substitute for the unobtainable vehicle.

CHICAGO CARS SELECTED FOR TESTING

CODE	NAME	ADDRESS	YR	MFGR	CYL	COST	TRANS	CID	SEQ #
11	MR. R L PREST	224 CLARENCE LN BERWYN IL 60402	64	FORD	6	1	A	170	56
12	MR. H H HOOP	33 BREWSTER CT LOMBARD IL 60148	64	FORD	8	2	A	260	703
21*	MR. C T TRAFICANT	596 RUBY LN DES PLAINES IL 60018	64	FORD	6	1	A	352	296
21*	MR. P E BRIEN	81 OAKTON RD DES PLAINES IL 60018	64	FORD	8	2	A	289	810
21*	MR. M L JOHNS	5 CHASE ST LOMBARD IL 60148	64	OLDS	8	2	A	330	82
11	MR. J B MARTIN	42 WOLF DR MELROSE PARK IL 60164	63	MERC	8	3	A	390	847
22*	MR. C T KINSEL	111 HOLIDAY DR DES PLAINES IL 60016	71	FORD	8	3	A	351	840
11	MR. C MYERSON	58 CLARENDON DR ADDISON IL 60101	71	PLYM	6	1	M	225	57
21*	MR. E E BURGES	39 LARCH ELMHURST IL 60126	71	PLYM	8	2	A	360	902
11	MISS A M HARREL	883 ROBIN HOOD DR DES PLAINES IL 60016	71	RAMBL	6	1	A	232	360
21*	MR. P P CIGLET	33 HICKORY ITASCA IL 60143	71	RAMBL	6	1	M	232	415
12	MR. A J KOLA	161 OAK PARK BERWYN IL 60402	71	DODGE	8	2	A	318	808
13	MISS J A SCHWEP	20 MICHIGAN ADDISON IL 60101	71	MERC	8	3	A	351	418

FIGURE 2.3-6

AESi personnel then contacted the owners of the selected vehicles and asked them to deliver their vehicles to the laboratory in accordance with the testing schedule. If the selected vehicle subsequently became unavailable for one reason or another, a spare vehicle was substituted for the initially selected vehicle. Advertising and other strategies were used in a limited number of circumstances to locate certain hard-to-find models.

AESi personnel then contacted the owners of the selected vehicles and asked them to deliver their vehicles to the laboratory in accordance with the testing schedule. If the selected vehicle subsequently became unavailable for one reason or another, a spare vehicle was substituted for the initially selected vehicle. Advertising and other strategies were used in a limited number of circumstances to locate certain hard-to-find models.

2.3.2 Test Vehicle Handling

Test vehicles were scheduled for testing at each of the laboratories in accordance with the respective laboratory work load and manpower capabilities. Double shifts were worked in all of the cities from time to time to expedite the completion of the program. Accordingly, the scheduling of test vehicles was a critical task, especially since the vehicle owners were relied upon to deliver their vehicles to the laboratories. Arrangements were made with the owners of the candidate vehicles several days in advance, and the owners were again reminded of the appointments one day prior to the scheduled time of delivery. In addition, standby test vehicles owned by participants who were especially willing to assist in the performance of the program and could bring their vehicles to the laboratory on relatively short notice were held in reserve whenever possible.

Virtually all of the participants required loan cars while their cars were being tested. AESi arranged for the provision of such loan cars, with full insurance in accordance with contractual requirements, through the services of Dollar-A-Day Rent-a-Car and American International Rent-a-Car. From the standpoint of the rental car fleet at each facility, scheduling was especially important, since each participant expected to be provided a rental car expeditiously upon his arrival at the laboratory. Unless a participant from the previous day had returned a rental car well in advance of the new participant's arrival, the new participant would either have to wait for the arrival of a rental car, or additional cars would be required. In the interest of expediting the program and making it as convenient as possible for the participants, AESi chose to have additional loan cars on hand to assure the immediate availability of loan cars for all participants delivering their test vehicles to the laboratory. Each candidate in the program signed two documents in conjunction with the exchange of vehicles. The first document was a test agreement which absolved the participant of all liability relating to his vehicle while in the possession of AESi. The second document indemnified the participant from any liability arising from the use of the loan car.

Figure 2.3-7 shows the composition of the actual test fleet and of the ideal test fleet, in terms of make and model year. For each cell of the idea

DESIRED TEST FLEET MAKEUP

ALL CITIES

Make/Year	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57	TOTAL
Buic	6	6	7	7	6	7	7	5	4	3	2	1	1	1	1	64
Cadi	3	3	2	2	2	2	2	2	1	1	1	1	1	1	1	25
Chev	32	23	23	23	20	23	24	22	20	15	7	5	6	7	7	257
Chry	2	2	3	3	2	3	1	1	1	1			1			20
Dodg	5	5	6	7	5	7	5	4	3	2	1	1	1		1	53
Ford	27	21	19	17	18	22	22	15	14	9	6	3	6	5	6	210
Impe	1		1													2
Linc	1	1	1		1	1										5
Merc	5	3	4	3	3	3	4	3	3	2	2	1	1		1	38
Olds	7	7	7	7	4	7	6	5	4	3	2	1	1	2	1	64
Plym	6	8	8	8	6	6	7	4	3	2	1	1	1	1	1	63
Pont	9	8	10	10	9	8	8	7	4	3	2	1	1	2	1	83
Ramb	7	2	3	3	2	3	3	4	4	3	1		1	2	1	39
Stud									1				1			2
Misc. + VW	9	12	13	10	9	7	6	4	4	3	2	2	2	3	3	89
TOTAL	120	101	107	100	87	99	95	76	66	47	27	17	24	24	24	1014

ACTUAL TEST FLEET MAKEUP

ALL CITIES

Make/Year	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57	TOTAL
Buic	6	6	7	7	7	7	7	5	4	3	3	1		1		64
Cadi	3	3	2	2	2	2	2	2	1	1	1	1	1	1	1	25
Chev	32	23	23	22	20	22	24	23	20	14	7	5	6	8	8	257
Chry	3	2	4	3	2	4	1	1	1				1		1	23
Dodg	5	5	6	7	5	8	3	4	3	2		1	1		2	54
Ford	27	21	19	17	17	22	22	15	15	9	6	5	7	5	6	213
Impe																0
Linc	1	1	1		1	1										5
Merc	6	3	4	4	4	2	3	3	3	2	2	1				37
Olds	7	8	6	9	3	7	6	5	4	3	3	1	1	3	1	67
Plym	6	8	8	8	8	6	7	4	3	1	1	1	1	1	1	62
Pont	9	8	10	10	8	9	10	7	3	4	2	1	2	2	1	86
Ramb	6	4	3	3	2	3	3	4	4	3	1		1	1		38
Stud									1				1			2
Misc. + VW	10	11	13	10	9	6	6	4	4	4	1	1	3	2	3	87
TOTAL	121	103	106	102	86	99	96	77	66	46	27	18	25	24	24	1020

FIGURE 2.3-7

test fleet matrix, it has been necessary to round to the nearest whole vehicle. Accordingly, the actual test fleet appears to be representative of the nation's light duty vehicle population. Figure 2.3-8 indicates the test fleet composition in each of the test sites. The procurement specialists strived to balance the make/year requirements so that approximately equal numbers of similar vehicles were tested in each of the test locations. This was accomplished, although a slight city-to-city imbalance does occur with certain vehicles. This slight imbalance derives from the unavailability of certain models at a given test location and the corresponding availability of the same models at other locations. Accordingly, when a given vehicle required to complete the total program test fleet was not located at the prescribed test location but was located at an alternative site, the vehicle was tested at the second site.

LOS ANGELES

Make/Year	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57	TOTAL
Buic	1	1	1	1	1	1	1	1	1	1	1					11
Cadi		1	1						1			1			1	5
Chev	5	4	4	3	4	4	4	4	3	3	1	1	1	2	1	44
Chry	1		1		1	1										4
Dodg	1		1	1	1	1	1								1	7
Ford	5	5	3	2	3	5	4	2	2	1	1	1	1	2	2	39
Impe																0
Linc					1											1
Merc	1		1		1	1	1		1							6
Olds	1	1		2			1	1	1	1	1			2	1	12
Plym	1	1	1	2	1	1	1							1		9
Pont	1	1	1	1	2	1	1	2			1		2	1	1	15
Ramb	1		1	1			1	1	1							6
Stud									1							1
Misc + VW	3	2	2	2	2	1	1	1				1				15
TOTAL	21	16	17	15	17	16	16	12	11	6	5	4	4	8	7	175

DENVER

Make/Year	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57	TOTAL
Buic	1	1		1	1	1	1	1	1		1					9
Cadi	1	1		1		1								1		5
Chev	5	4	4	4	4	3	4	4	4	2	1	1	1	2	1	44
Chry	1			1		1	1									4
Dodg	1	1	1	1		1	1	1								7
Ford	4	4	3	3	3	4	3	3	2	2	1	1	1	1	1	36
Impe																0
Linc																0
Merc	1		1	1	1		1	1		1						7
Olds	1	1	1	1	1	1	1	1	1							9
Plym	1	1	2	1	1	1	1	1	1						1	11
Pont	1	2	2	1	2	2	1	1		1	1					14
Ramb	1		1		1		1		1				1			7
Stud																0
Misc + VW	2	2	2	3	1	1	1		1	1			1		1	16
TOTAL	20	17	17	18	15	16	16	13	11	8	4	2	4	4	4	169

CHICAGO

Make/Year	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57	TOTAL
Buic	1	1	2	2			1	1		1				1		10
Cadi		1				1		1					1			4
Chev	5	3	4	5	3	5	6	5	1	4	1				2	44
Chry				1	1	1										3
Dodg		1	2		2	1	2	1		1						10
Ford	3	3	4	4	5	2	4	3	1	2	1				1	33
Impe																0
Linc	1		1													2
Merc				1	1				1							3
Olds		1	2	2		1	1	1		1	1		1			11
Plym	1	2	1	2	1	1	1	1								10
Pont	2	2	2	2	1	2	3	3	1					1		19
Ramb	1	1	1			1	1	1								6
Stud																0
Misc + VW	1	2	2	1	1	1	1	1	1	1	1			1		14
TOTAL	15	17	21	20	15	16	20	18	5	10	4	0	2	3	3	169

HOUSTON

Make/Year	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57	TOTAL
Buic	1	1	1	2	1	1	1	1	1			1				11
Cadi				1			1									2
Chev	7	4	4	4	3	4	4	4	4	1	1	1	2	1	1	45
Chry			1												1	2
Dodg	1	1	1	1	1	1	1	1								8
Ford	5	3	4	3	3	4	4	2	4	1	1		2	1	1	38
Impe																0
Linc		1				1										2
Merc	2	1		1				1								5
Olds	1	3	1	2		2	1	1								11
Plym	1	1	2	2	1	1	1		1	1						11
Pont	2	1	2	2	1	1	2	1	1							13
Ramb								1	1	1						3
Stud													1			1
Misc + VW	2	2	3	2	2	2	1	1	1	1						17
TOTAL	22	18	19	20	12	17	16	13	12	6	2	2	5	2	3	169

ST. LOUIS

Make/Year	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57	TOTAL
Buic	1	1	1		2	2	1	1			1					10
Cadi	1				1			1								3
Chev	5	4	4	3	3	3	3	3	4	2	2	1	1	1	2	41
Chry		1		1		1			1							4
Dodg	1	1		2	1	2		1	2	1			1			12
Ford	5	3	3	3	1	4	3	2	3	2	1	2	2		1	35
Impe																0
Linc																0
Merc	1	1	1	1	1	1	1	1			1	1				10
Olds	2	1	2	1	1	2	1		1	1	1					13
Plym	1	1	1		1	1	1	1	1			1				9
Pont	2	1	2	3	1	1	2		1	1						14
Ramb	2	2		1		1				1						7
Stud																0
Misc + VW	1	1	2	1	2		1			1			1		1	11
TOTAL	22	17	16	16	14	18	13	10	13	9	6	5	5	1	4	169

WASHINGTON, DC

Make/Year	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57	TOTAL
Buic	1	1	2	1	2	2	2		1	1						13
Cadi	1		1		1		1			1	1					6
Chev	5	4	3	3	3	3	3	3	4	2	1	1	1	2	1	39
Chry			2					1	1				1			6
Dodg	1	1	1	2		2			1		1				1	10
Ford	5	3	2	2	2	3	4	3	3	1	1	1	1	1		32
Impe																0
Linc																0
Merc	1	1	1						1	1	1					6
Olds	1	2	1	1	1	1	1	1	1			1		1		11
Plym	1	2	1	1	1	1	2	1			1		1			12
Pont	1	1	1	1	1	2	1		1	1		1				11
Ramb	1	1		1	1	1		1	1		1			1		9
Stud																0
Misc + VW	1	2	2	1	1	1	1	1	1				1	1	1	14
TOTAL	21	18	16	13	13	16	15	11	14	7	6	5	5	6	3	169

FIGURE 2.3-8

2.4 FACILITIES AND EQUIPMENT

2.4.1 Test Locations

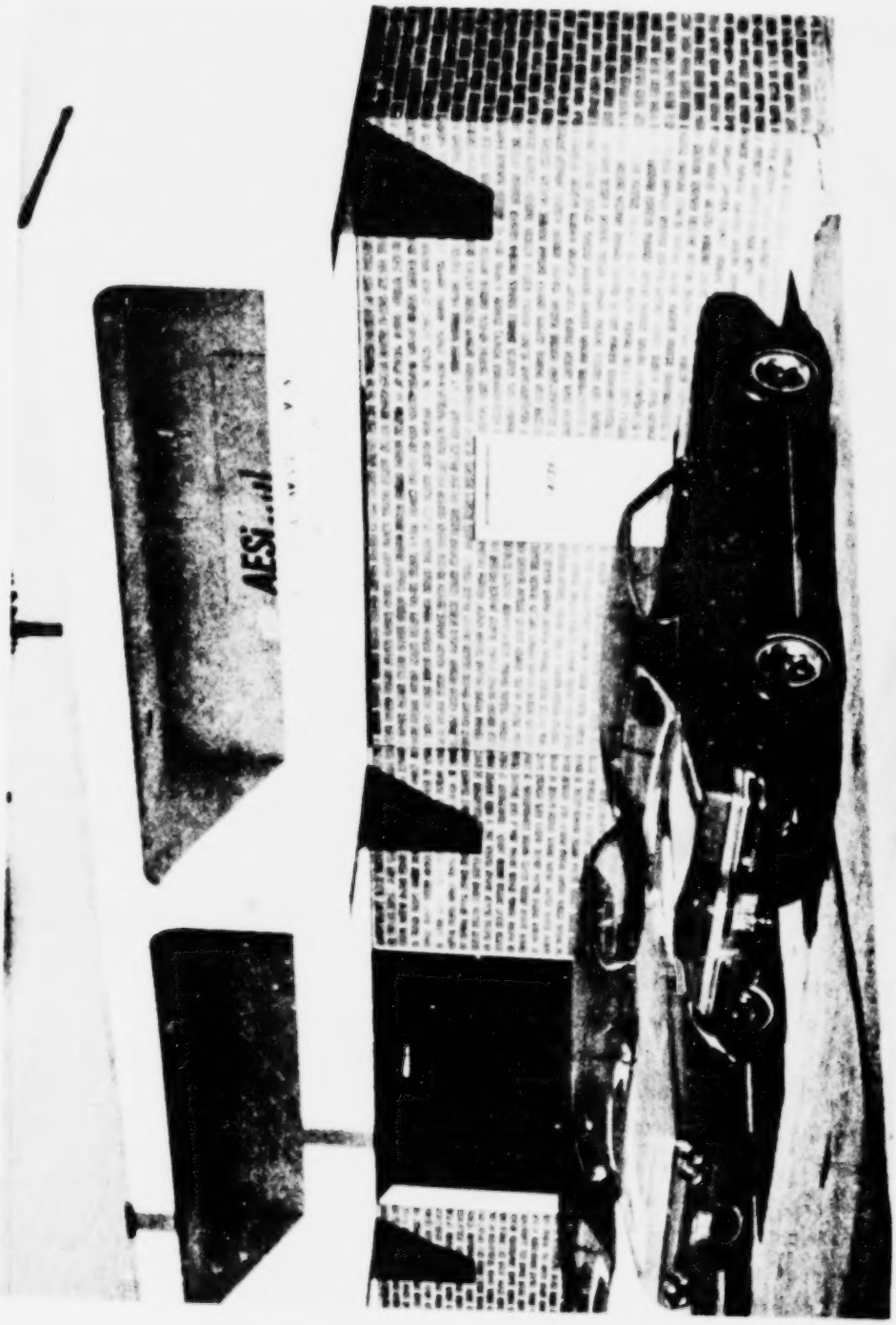
Test facilities were established in the metropolitan areas of the six cities. Permanent facilities were established in Los Angeles and St. Louis while temporary facilities were established in Denver, Chicago, Houston, and Washington, D. C. In accordance with contractual requirements, all of the facilities were located within the metropolitan areas. Easy accessibility by the program participants was considered in selection of the specific locations. The address and elevation above mean sea level of each facility follows:

Los Angeles 14239 Hindry Avenue Hawthorne, CA 90250 100 feet	Denver 19900 E. Colfax Avenue Aurora, CO 80010 5,300 feet
Chicago 9115 Medill Avenue Franklin Park, IL 60131 600 feet	St. Louis 10723 Indianhead Blvd. St. Louis, MO 63132 400 feet
Houston 6343-A Beverlyhill Houston, TX 77027 50 feet	Washington, D. C. 3031 Eighth Street, NE Washington, D.C. 20017 50 feet

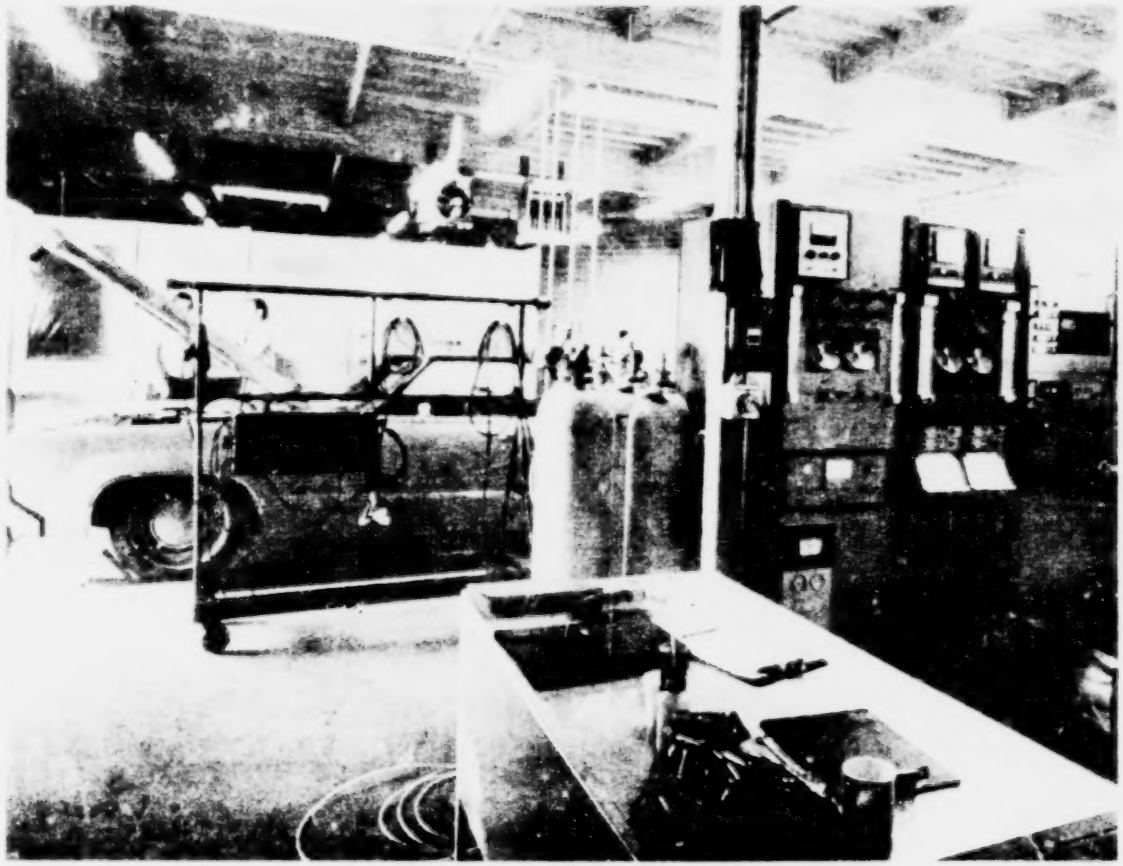
Figures 2.4-1 and 2.4-2 illustrate the Los Angeles Laboratory and Figure 2.4-3 is a view of the St. Louis Laboratory.

2.4.2 Constant Volume Sampler

Four complete sets of vehicle emissions testing equipment were used during the performance of testing in the six cities. The equipment described in this section was designed and built in accordance with requirements stipulated in pertinent issues of the Federal Register for performing vehicle emissions tests in accordance with the 1972 through 1975 Federal Test Procedures. An AESi designed and fabricated Constant Volume Sampler was utilized in each of the six cities. Each of these constant volume samplers features a specially designed gas to water heat exchanger and temperature control circuit which allows for precise control of the sample temperature. Inlet pressure depression is adjusted by a precision butterfly valve

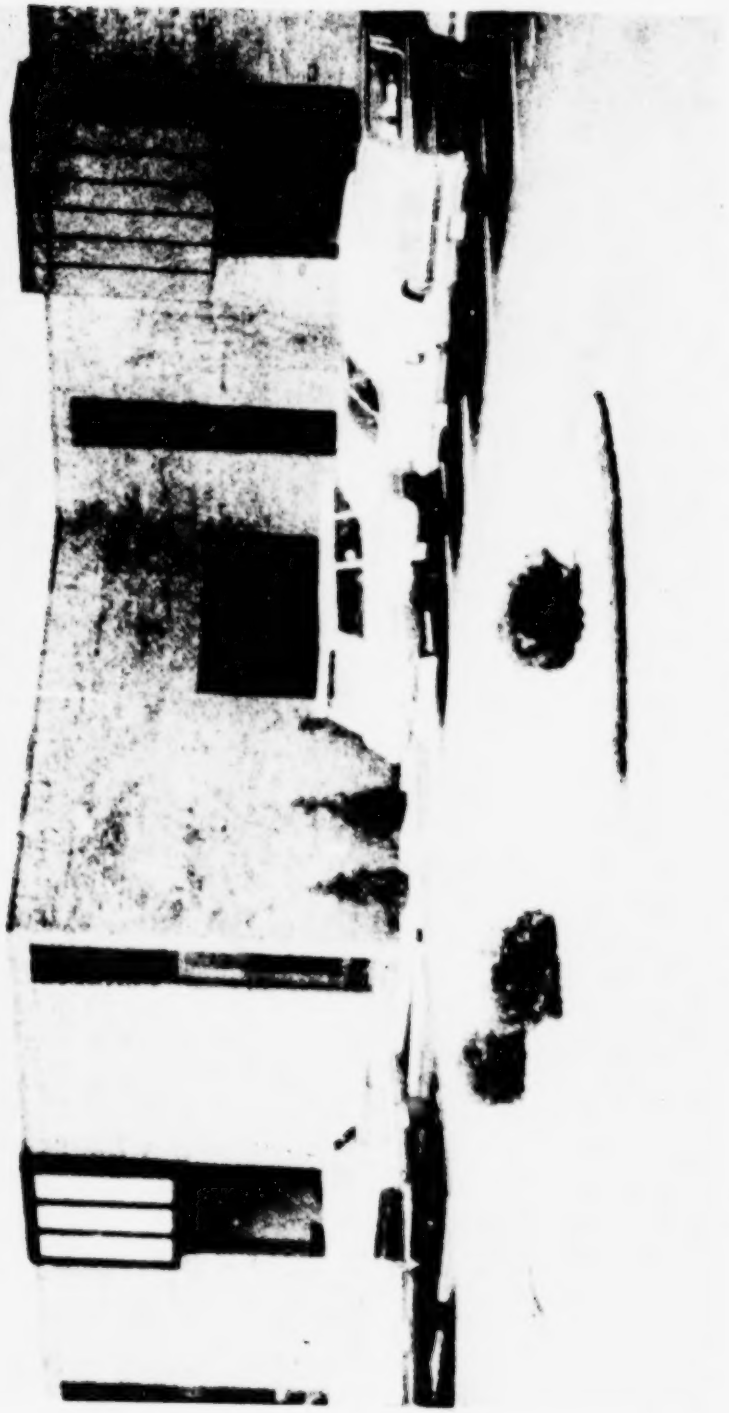


AESi HAWTHORNE FACILITY
FIGURE 2.4-1



AESi LOS ANGELES LABORATORY SHOWING EVAPORATIVE
EMISSIONS TESTING "SHED" IN BACKGROUND

FIGURE 2.4-2



AESi ST. LOUIS FACILITY
FIGURE 2.4-3

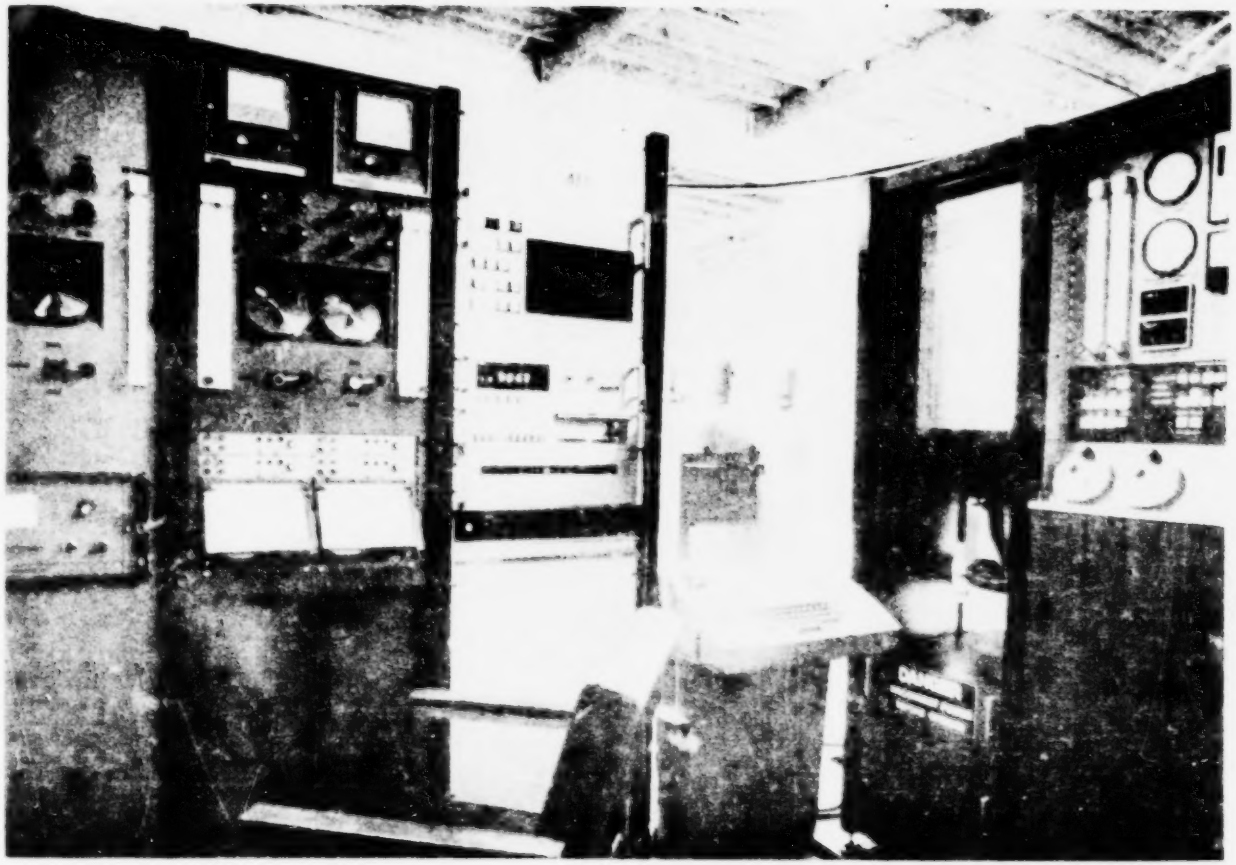
enabling inlet pressure adjustments to within plus or minus 0.005 inches of water. Blower speed is maintained at a constant 1,125 revolutions per minute by the use of a constant speed motor. Blower revolutions are counted by the use of a magnetic or optical pickup and an electronic counter. All function controls are push button operated giving a confirming visual indication when each particular function is being performed. In accordance with contractual requirements, each constant volume sampler surpassed the noise level specification imposed by the Federal Walsh-Healey Public Contracts Act and other requirements. Additional performance details of the constant volume sampler are discussed in the section dealing with qualification and cross check of testing equipment. Figure 2.4-4 illustrates the AESi Constant Volume Sampler.

2.4.3 Exhaust Analysis Console

The exhaust analysis consoles used during the performance of this program were designed in accordance with specifications stipulated in various Federal Registers for vehicle emissions testing by the 1972 and 1975 Federal Test Procedure. Certain modifications were made to the exhaust analysis console plumbing schematic to permit continuous analysis during the acceleration/deceleration sequence. The features specified in the 1975 Federal Test Procedure for drying the sample gas and removing carbon dioxide from the carbon monoxide sample train were not included. These were not of practical importance at the higher emission levels encountered. The instruments used in the exhaust analysis consoles were the Beckman Model 315A or 315B Non-dispersive Infrared Analyzers for the measurement of carbon monoxide and carbon dioxide. The carbon monoxide instrument featured a stacked sample cell configuration and three-range amplifier. The carbon dioxide analyzer contained the standard 1/8" sample cell with a dual range amplifier.

A Beckman Model 400 Flame Ionization Analyzer was utilized to measure total hydrocarbons. Each of the Model 400 Flame Ionization Detectors were operated with a 40% hydrogen/60% helium or nitrogen fuel mixture and special capillary to minimize the oxygen effect.

The Thermal Electron Corporation Model 10A Chemiluminescent Analyzer was used for the measurement of NO and NO_X. This instrument was equipped with 7 ranges from 0 to 10 through 0 to 10,000 ppm NO. A thermal converter was employed to convert NO_2 and other nitrogen oxides to NO.



AESi CONSTANT VOLUME SAMPLER and EXHAUST ANALYSIS CONSOLE

FIGURE 2.4-4

Honeywell Model 193 or Texas Instruments Potentiometric Recorders were used in the exhaust analysis console to record all instrument signal outputs. The AESi Exhaust Analysis Console is depicted in Figure 2.4-5. Table 2.4-1 indicates the ranges used for each instrument.

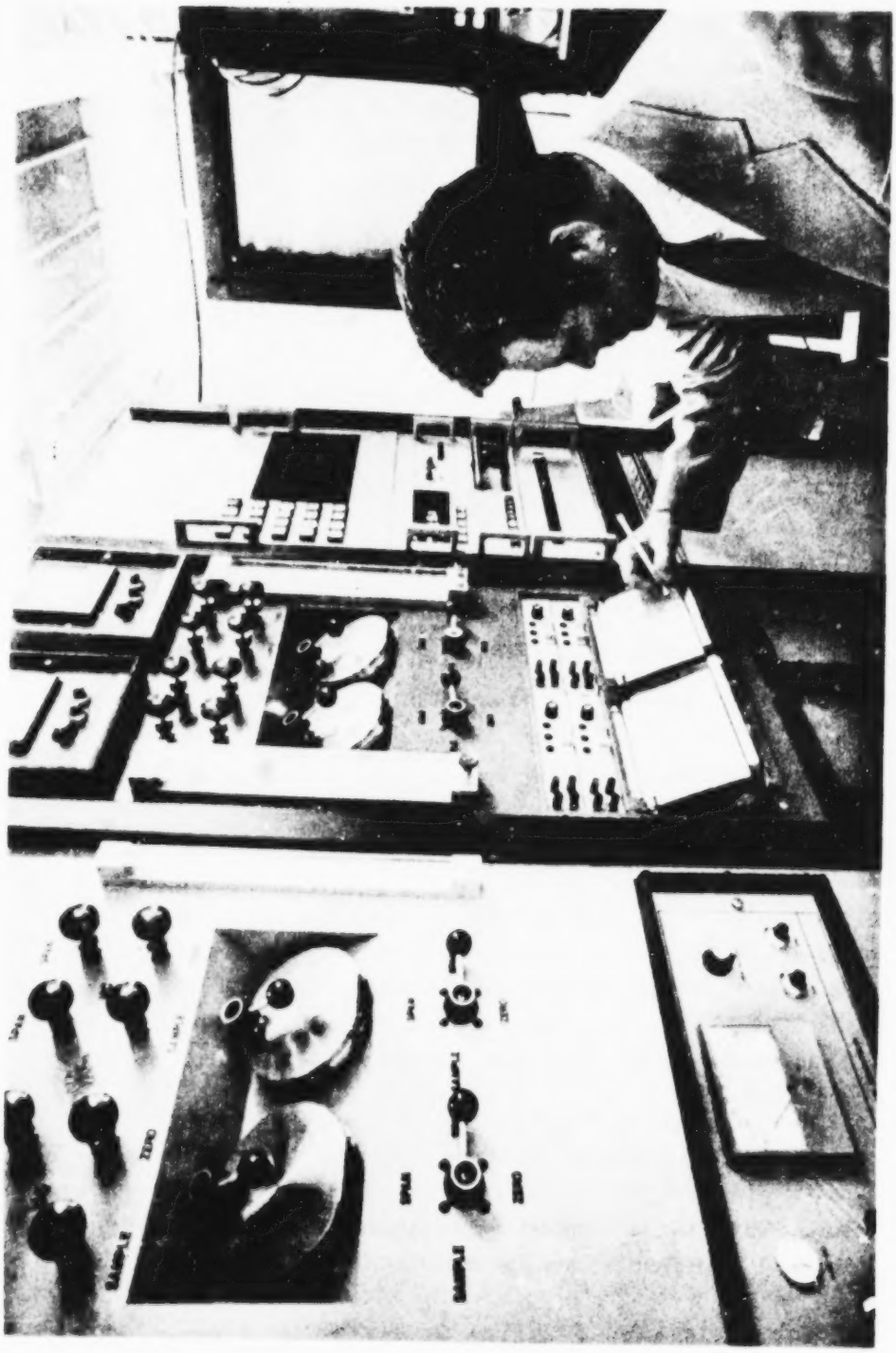
TABLE 2.4-1 INSTRUMENT RANGES

INSTRUMENT	AESi RANGE NO.	NOMINAL RANGE CONCENTRATION
Carbon Monoxide	1	0 - 10.0 percent
	2	0 - 6.0 "
	4	0 - 1.2 "
	6	0 - 0.3 "
Carbon Dioxide	2	0 - 6.0 percent
	3	0 - 3.0 "
Hydrocarbon	2	0 - 100 ppmC
	3	0 - 1,000 "
	4	0 - 10,000 "
NO and NO_x	4	0 - 100 ppm
	5	0 - 250 "
	6	0 - 1,000 "
	7	0 - 2,500 "

2.4.4 SHED And Fuel Conditioning Cart

An AESi designed and fabricated SHED (Sealed Housing for Evaporative Determinations) was used in Los Angeles and Denver to perform the evaporative emissions portion of the test program. The SHED was constructed of preformed light gauge aluminum panels providing excellent heat dissipation. Panels were bolted together at formed flanges, and the SHED was fitted with windows, doors and a ceiling of tautly stretched Dupont Tedlar polyvinyl fluoride film. The SHED dimensions are 10 feet wide by 21 feet long by 8 feet high; large enough to accommodate all standard sized automobiles. Specially designed doors seal completely upon closing rendering the enclosure leak proof and pressure tight. Specifications of the SHED are in agreement with all requirements stipulated in the SAE J171 Evaporative Emissions Test Procedure.

A Beckman Model 400 Flame Ionization Detector was used in conjunction with the SHED to measure hydrocarbon evaporative emissions. The AESi Fuel Conditioning Cart used to condition test fuel was of the same design and manufacture used by the Environmental Protection Agency in the Ann Arbor facility. The fuel conditioning cart was capable of maintaining a bulk fuel



DETAIL OF AESi EXHAUST ANALYSIS CONSOLE

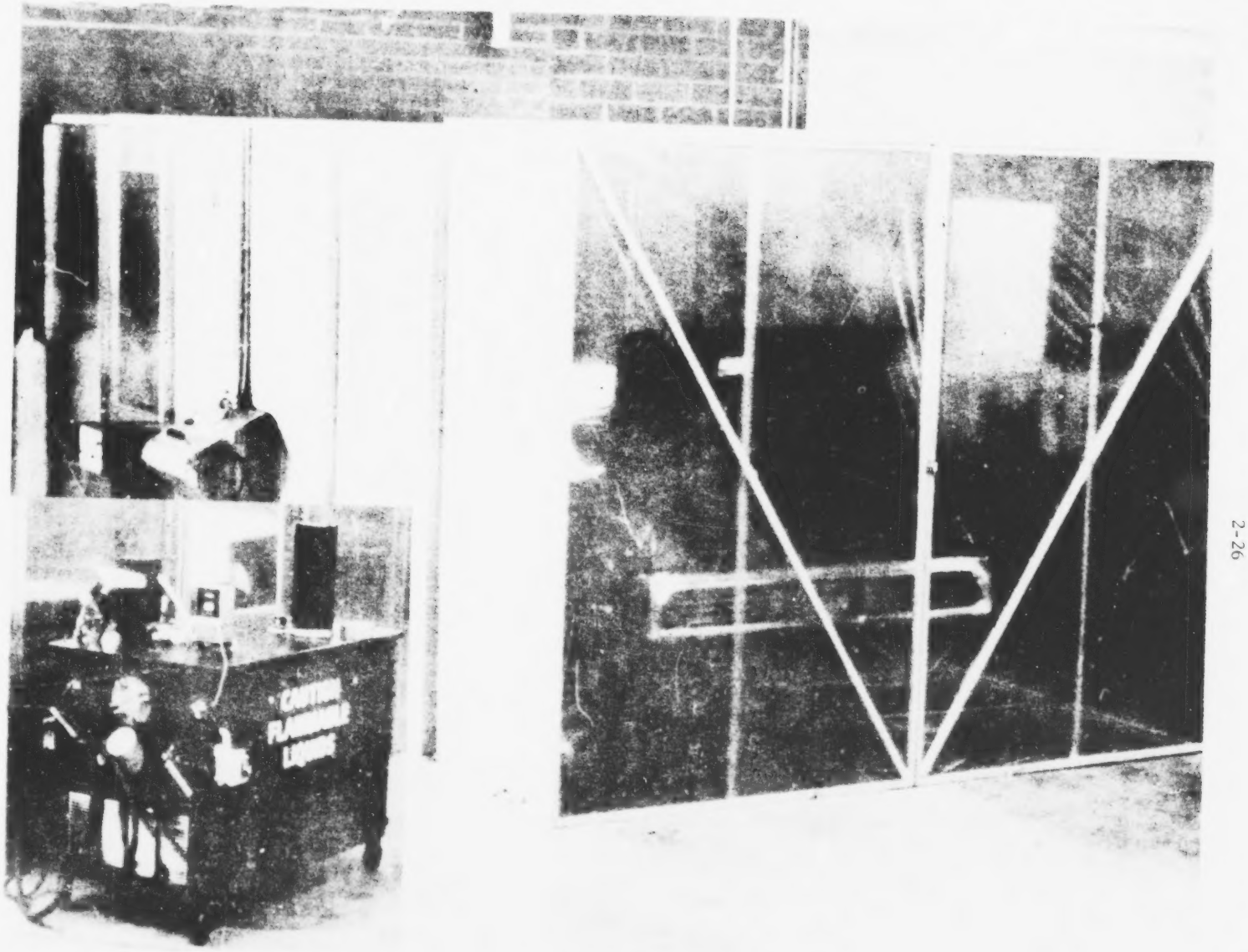
FIGURE 2.4-5

temperature of 60°F or less. The fuel conditioning cart had the capability for transferring fuel and filling or emptying vehicle tanks, and featured an internal fuel circulate mode to expedite gasoline temperature conditioning and to prevent temperature stratification within the tank. The cart was fabricated in accordance with National Electric Code specifications for equipment operating and hazardous atmospheres. The SHED and fuel conditioning cart are depicted in Figure 2.4-6.

2.4.5 Laboratory Standard Calibration Gases: Four complete sets of laboratory standard calibration gases were procured by AESi. The contents of each cylinder was analyzed and concentrations were assigned by the Office of Air Programs of the Environmental Protection Agency in Ann Arbor. Each laboratory used the standard set of gases for defining the complete instrument calibration curves and for subsequent assigning of values to the day-to-day "working" gases. The laboratory standard gases and their nominal concentrations are tabulated in Figure 2.4-7.

2.4.6 Chassis Dynamometer: The Clayton Variable Inertia Chassis Dynamometer, equipped with 250 pound increment inertia loading weights and the low torque bridge (0-40 hp) was utilized in each of the laboratories.

2.4.7 Miscellaneous Equipment: In addition to the equipment previously described, Varian driver aids were utilized to provide driving schedules for the various driving sequences performed during this program. In addition, an Autoscan ignition analyzer, timing light, tach-dwell meter, other tuneup equipment, and small tools were used as necessary. Instruments for equipment qualifications are described in Section 2.5.



AESI SHED AND FUEL CONDITIONING CART
FIGURE 2.4-6

LABORATORY STANDARD CALIBRATION GASES

Instrument	AESi Range	Nominal Concentration
FID	2	10 ppm Carbon in Air
"	2	25 " " " "
"	2	50 " " " "
"	2	75 " " " "
"	2-3	100 " " " "
"	3	200 " " " "
"	3	310 " " " "
"	3	575 " " " "
"	3-4	1000 " " " "
"	4	1450 " " " "
"	4	4200 " " " "
"	4	8300 " " " "
"	4	12500 " " " "
CO	6	1,000 ppm CO in N_2
"	6	2,000 " " " "
"	6-4	3,000 " " " "
"	6-4	5,000 " " " "
"	4	7,500 " " " "
"	4-2	12,000 " " " "
"	2	15,000 " " " "
"	2	20,000 " " " "
"	2	40,000 " " " "
"	2	60,000 " " " "
CO_2	3	3,000 ppm CO_2 in N_2
"	3	7,000 " " " "
"	3	10,000 " " " "
"	3-2	15,000 " " " "
"	3	20,000 " " " "
"	3-2	25,000 " " " "
"	3-2	30,000 " " " "
"	2	50,000 " " " "
"	2	60,000 " " " "
NO_x	5	50 ppm NO in N_2
"	5	100 " " " "
"	5-6	200 " " " "
"	5-6	320 " " " "
"	6	480 " " " "
"	6	600 " " " "
"	6	750 " " " "
"	6	1,000 " " " "

FIGURE 2.4-7

2.5 EQUIPMENT QUALIFICATION, CALIBRATION AND CROSS CHECK

The initial qualification, periodic calibration and cross check of all testing equipment was of paramount importance to the program. Contractual requirements stipulated the use of the latest type of constant volume sampling and analytical equipment for continuously measuring extremely low concentrations of dilute exhaust emitted by modern automobiles, as well as very high concentrations from older vehicles. The wide range of effluent concentration, continuous analysis requirement and high level of test precision demanded by the Environmental Protection Agency necessitated a rigorous qualification, calibration and cross check procedure.

A new set of parameters for calibration has been added to the vehicle emissions test calibration procedures. Since the constant volume sampler is basically an exhaust mixture sampling device, any errors associated with the calibration of the CVS may be transmitted directly to the instrument system and ultimately to the final data base. The remainder of this section describes in detail the qualification, calibration and cross check procedures utilized by AESi and EPA technical personnel to insure the generation of precise emission test data. Particular emphasis has been placed on the constant volume sampler since it is a relatively new piece of hardware and because of its broad application in this program.

The requirement for system qualification was ±2 percent overall accuracy. This requirement encompassed the constant volume sampler, exhaust analysis console, the primary CVS flow calibration device, and a laboratory balance. In addition, the chassis dynamometer was calibrated by the coast-down technique stipulated in the Federal Register. The SHED for evaporative determinations in Los Angeles and Denver was qualified and calibrated in accordance with procedures stipulated in the SAE Technical Report J171.

Because of the possible changes in calibration caused by transporting equipment from city to city, it was decided early in the program that a complete system calibration, with the exception of assigning concentration values to laboratory standard calibration gases, would be performed in each of the cities prior to emissions testing. In addition to the initial qualifications in each of the cities, EPA personnel supervised periodic

calibrations and cross check procedures in each of the cities during the course of the program. Also, just prior to completion of testing in each city, EPA representatives visited each laboratory to perform a final system cross check. No tests were performed in any of the cities before meeting the qualification or cross check requirements.

2.5.1 Constant Volume Sampler

The objective of the calibration procedure was to accurately determine the volume flow rate of the constant volume sampler at the controlled temperature and inlet pressure. In conjunction with determination of the flow rate, instruments which measured mixture temperature, pressure drop, barometric pressure, wet and dry bulb temperatures and other pertinent variables had to be calibrated. Table 2.5-1 lists the parameters which were monitored, together with the dedicated monitoring instrument and the laboratory calibration standard.

The constant volume sampler mass flow at given operating conditions was calibrated against a Meriam Laminar Flow Element (LFE) Model 50 MC2-SF, Serial No. C-43051, rated at 1,000 CFM at 8" H_2O. The parameters used to measure mass flow through the LFE are shown in Table 2.5-2.

Mass flow through the LFE was calculated (after correcting P_A and P_L for T_A and T_M and after converting P_p, P_L and T_p into absolute values) by the following formula:

$$V_{LFE}SCFM = (\triangle P_L \cdot 127 + 4) \cdot (T_L \text{ Cor. Factor}) \frac{(P_L \text{ "}H_2O)}{406.8\text{" } H_2O}$$

The LFE was originally calibrated at the factory with a calibration accuracy of ±0.3% traceable to the National Bureau of Standards (NBS). That calibration in the applicable range was $V = \triangle P_L \cdot 128 + 4$, where V = LFE volume flow in CFM. Subsequently, a local calibration traceable to the NBS was performed with an accuracy of ±0.75%. The second calibration within the operating range was expressed as $V = \triangle P_L \cdot 125.17 + 5.87$. We applied the formula $V = \triangle P_L \cdot 127 + 4$ which is within 0.8% of both calibration curves. A typical $\triangle P_L$ is 2.36" H_2O.

Volume of the blower in $ft.^3$ per revolution (V_o) was calculated as follows:

$$V_o = \frac{V_{LFE}SCFM}{RPM} \cdot \frac{406.8\text{" } H_2O}{P_p\text{" } H_2O} \cdot \frac{T_p{}^\circ R}{530^\circ R} \cdot$$

CONSTANT VOLUME SAMPLER CALIBRATION PARAMETERS, MONITORS, AND STANDARDS

	PARAMETER	DEDICATED MONITOR	CALIBRATION STANDARD
1.	P_p Absolute pressure on the inlet side of the blower. This pressure is determined differentially (ambient minus depression).	Magnehelic gauge reading 0" to 15" H_2O in 0.2" increments.	Meriam or Dwyer "U" tube manometer reading 0" to 50" H_2O in 0.1" increments.
2.	ΔP Differential pressure across the blower.	Magnehelic gauge reading 0" to 20" H_2O in 0.2" increments.	Same as above.
3.	P_A Ambient pressure.	Meriam absolute pressure well manometer or barometer reading 0" to 38" Hg in 0.01 increments by means of a vernier.	Same as dedicated monitor.
4.	T_A Ambient temperature to correct P_A.	Glass stem thermometer.	ASTM 50F glass stem mercury filled thermometer.
5.	T_p Temperature on the inlet side of the blower.	API panel meter reading 0° to 300°F in 2° increments coupled to a type J thermocouple.	ASTM 64F Glass stem mercury filled thermometer.
6.	N Number of blower revolutions during a test interval.	ERC counter with magnetic or photoelectric pick up.	60 Hertz strobe light strobotac, stop watch and electric utility line frequency specifications.
7.	E.T. Elapsed time of a test interval.	Excelsior Park stop watch reading 0 to 30 minutes in 0.2 second intervals.	Same as dedicated monitor

TABLE 2.5-1

LAMINAR FLOW ELEMENT CALIBRATION PARAMETERS AND STANDARDS

	PARAMETER	CALIBRATION STANDARD
1.	ΔP_L Differential pressure across the LFE.	Meriam inclined manometer either reading 0" to 8" H_2O in 0.01" increments with distilled H_2O or reading 0" to 4" H_2O in 0.02" increments with red oil. Either can be read to 0.005" H_2O.
2.	P_L Absolute pressure at the inlet side of the LFE. The pressure is determined differentially (ambient pressure minus inlet pressure).	Meriam or Dwyer "U tube" manometer reading 0" to 50" H_2O in 0.1" H_2O increments.
3.	P_A Ambient pressure.	Meriam absolute pressure well manometer or barometer reading 0" to 38" Hg in 0.01 increments by means of a vernier.
4.	$f(T_L)$ Temperature at the inlet of the LFE. Used to correct air flow for viscosity.	ASTM 50F or ASTM 64F glass stem mercury filled thermometer.
5.	$f(T_M)$ Temperature of the inclined manometer used to correct ΔP_L for indicating fluid density.	Glass stem thermometer calibrated against an ASTM 64F.

TABLE 2.5-2

Since V_o was the desired output and RPM = 1125 for all AESi constant volume samplers, the following formula applied:

$$V_o = (\triangle P_L \cdot 127 + 4) \cdot f(T_M) \cdot f(T_L) \cdot P_L \div P_p \cdot T_p \div 596250$$

The CVS Flow Test Sheet, Figure 2.5-1, is a form used by AESi to program the accumulation of all prerequisite data as well as the orderly calculation of V_o. Of note is the time column; it was imperative that stabilization of the CVS and the instruments was attained before readings are taken at each setting.

An exhaustive set of flow calibration runs was carried out on any new CVS at the San Bernardino manufacturing facility. After both inlet and outlet sides of the CVS were pressure leak tested and other operating requirements such as the fixed 1125 RPM were confirmed, mass flow calibration was performed which bracketed all normal operating conditions. Inlet flow testing was performed at pressures (P_p and $\triangle P$) above, equal to, and below normal operating conditions. Inlet flow testing was also performed at temperatures (T_p) above, at, and below normal operating conditions. Figure 2.5-2, entitled "Mass Flow Calibration", illustrates the method of obtaining readings during flow tests. After inlet tests had repeatedly defined V_o, outlet flow tests were conducted as verification of the inlet tests. It was not expected that outlet tests agreed perfectly with inlet tests because of approximately 60°F difference in T_L. The T_L correction factor was derived by Meriam theoretically rather than empirically; consequently, the factor is not exact. Meriam calibrates at 70°F. T_L during inlet flow testing was near 70°F, but during outlet flow tests $T_L \cong 130°F$.

The effect on volume of various temperatures (T_p) near the normal operating T_p has been found to be less than measurable provided that $\triangle P$ was readjusted to maintain a given value. We have also tested the effect of various back pressures at a given $\triangle P$ and found the effect to be less than measurable within obtainable limits. Nevertheless, field installations of CVS's have been specified to preclude any substantial difference in back pressure between inlet flow tests and normal operating conditions.

AESi AUTOMOTIVE ENVIRONMENTAL SYSTEMS, INC.

CVS FLOW TEST # 2

SH 1 OF 1

DESCRIPTION: ☑ INLET ☐ OUTLET

DATE 4-17-72

SITE STLW

TECH JGS

$V_o = (\Delta P_L \cdot 127 + 4) f T_M \cdot f T_L \cdot P_L \div P_p \cdot T_p \div 596250$

P_A cor $H_2O'' = (-0.00136 \cdot T_A\,°F + 13.6912) P_A$ Hg"

STEP NO.	△P H_2O"	V_o Ft.³/Rev.	T_A °F	P_A Hg" / P_A cor H_2O"	△P_L H_2O"	T_M / $f T_M$	T_L / $f T_L$	☐+ / ☑− P_L △ H_2O" / P_L A H_2O"	P_p △ H_2O" / P_p A H_2O"	T_p °F / T_p °R	TIME SET / READ
1.	13.2	.2967	74	29.63 / 402.7	2.37	75 / .9984	71.5 / .995	1.20 / 401.5	10.7 / 392.0	110 / 570	9:00AM / 9:18
2.	15.0	.2953		402.7	2.35 STABLE EARLY	76 / .9984	72.5 / .9916	1.20 / 401.5	12.5 / 390.2	111.5 / 571.5	9:19 / 9:26
3.	18.0	.2931		402.7	2.30	75 / .9984	70.5 / .9983	1.20 / 401.5	15.6 / 387.1	111 * / 571	9:27 / 9:35
4.	20.0	.2917		402.7	2.28	75 / .9984	71 / .9967	1.20 / 401.5	17.7 / 385.0	111 / 571	9:36 / 9:42
5.	16.0	.2947		402.7	2.325	75 / .9984	70.5 / .9983	1.20 / 401.5	13.6 / 389.7	111 / 571	9:43 / 9:51
6.	13.25	.2973		402.7	2.375	75 / .9984	71.5 / .995	1.20 / 401.5	10.7 / 392.0	110 / 570	9:52 / 10:00AM
					ZERO ✓ 0.005 INCH RECHECK LAST POINT		71 / ~~.9967~~			~~107~~ / 567	
7.	13.25	NOT STABLE		402.7	2.38	75 / .9984	71.5 / .995	1.20 / 401.5	10.7 / 392.0	107 / 567	10:03 / 10:06
8.	13.3	.2968		402.7	2.375 ZERO LOOD	75 / .9984	72 / .9933	1.20 / 401.5	10.7 / 391.9	110 / 570	10:08 / 10:19

* CHECKED WITH PANEL METER - CAL. SPOT ON △ V_o RISES INVERSELY WITH T_p - △P RISES INVERSELY ALSO

FIGURE 2.5-1

MASS FLOW CALIBRATION

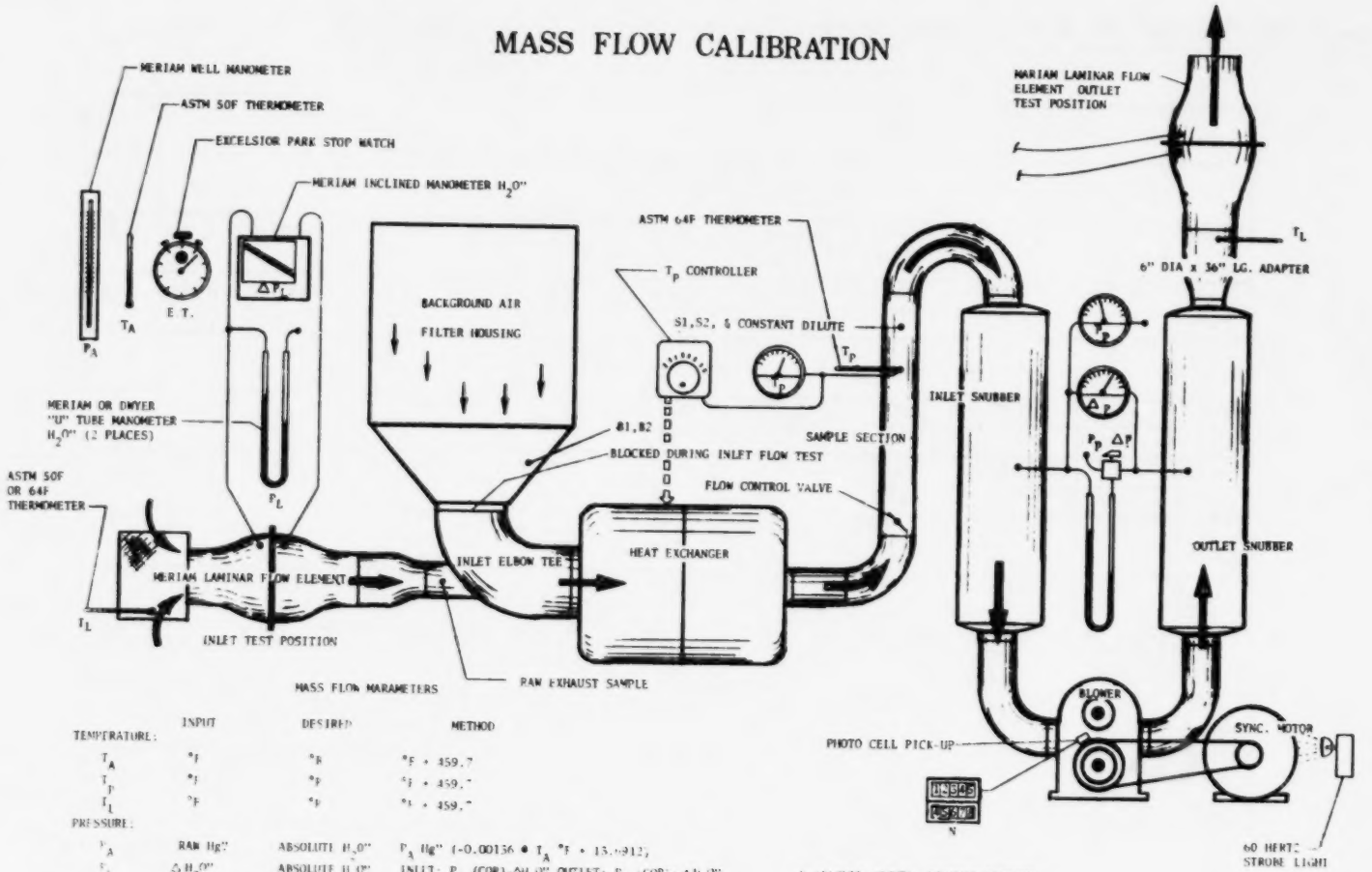


FIGURE 2.5.2

	INPUT	DESIRED	METHOD
TEMPERATURE:			
T_A	°F	°R	°F + 459.7
T_P	°F	°R	°F + 459.7
T_L	°F	°R	°F + 459.7
PRESSURE:			
P_A	RAW Hg"	ABSOLUTE H_2O"	P_A Hg" (-0.00136 • T_A °F + 13.5912)
P_L	ΔH_2O"	ABSOLUTE H_2O"	INLET: P_A (COR)-ΔH_2O" OUTLET: P_A (COR) - ΔH_2O"
T_P	ΔH_2O"	ABSOLUTE H_2O"	P_A (COR)-ΔH_2O"
ΔP_L	ΔH_2O"	ΔH_2O"	
ΔP	ΔH_2O"	ΔH_2O"	

N (BLOWER COUNT) DIGITAL READOUT
E.T. DECIMAL MINUTE

$$V_o = (\Delta P_L \bullet 127 \bullet 1) \bullet \int T_M \bullet \int T_L \bullet \frac{P_L}{\bullet} P_P \bullet T_P \frac{\bullet}{\bullet} 596250$$

2-54

After complete calibration in San Bernardino, the CVS's were shipped and set up in the various laboratories. Automobile exhaust was run through the CVS in the normal manner to establish a stable "plating" or accumulation of rust and carbon within the blower. Flow testing was then performed on site to calibrate the actual flow under actual operating conditions. The ambient conditions of various sites were found not to affect V_o. However, blower "plating" contributed an increase of between 1/3 and 1% in V_o.

Propane Recovery Tests (PRT) required that the CVS, the sample lines, Exhaust Analysis Console, the Flame Ionization Detector (FID), and all supporting laboratory instruments and devices, i.e., propane cylinder, mass scale, barometer, etc., functioned properly and were fully calibrated. Once this was done the PRT's fell within a 2 percent band whose mean was within 1 percent of 100 percent recovery. The PRT's were performed in compliance with Federal Register, Volume 35, Number 219, Part II, dated November 10, 1970, Appendix C, except that the density of propane has been revised from 17.3 grams/ft.^{3} to 17.6 grams/ft.^{3} at 406.8" H_2O absolute pressure and 68°F.

Once the ability to perform consistent PRT's within the above mentioned tolerance band had been demonstrated, the CVS was calibrated. Daily PRT's were performed to assure that the system continued to function within tolerance limits. A sample PRT form is included in this section as Figure 2.5-3. All pertinent data relating to CVS calibration may be found in the supporting documentation.

To fully qualify the CVS, we conducted operating tests in addition to the flow calibration. One operating requirement was that the CVS not affect an automobile's static exhaust pressure at the tailpipe by more than 1" H_2O at any time during the emissions testing driving cycle. This was measured by running a static pressure tap in the tailpipe 3-1/2" from the outlet, to a "U tube" water manometer, and then measuring back pressure during the first 250 seconds of the Federal Cycle without the CVS connected. Then the CVS was connected and the 250 second run was repeated. Typical pressure differences using a 350 CID Chevelle were as follows:

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PRT

CVS PROPANE RECOVERY TEST NO. 6

PROJ: 210
SITE: ST. LU
DATE: 4-12-72
TECH: JGS
E.T.: 10:00:0
Δ P: 13.0

FID DEFLECTIONS	PPM_C
S1 68.1	681.0
B1 2.0	20.0

(-0.00136 • T_A 84 °F + 13.6912) • P_A 29.53 "Hg

-P_p 1.06 "H_2O + T_p 572 °R • 2.2843 • NET 661 PPM_C

• V_o .297 Ft.^{3}/Rev. • 0.00001 • N 11252 = HC MASS 34.43 GRAMS

+ PROPANE CYLINDER EMPTY 1148.9

- PROPANE CYLINDER FULL 1183.4 • 100 ÷ HC MASS = -0.19 % RECOVERY ☐ + GAIN ☑ - LOSS

Comments: 919.4 GAS SPANNED @ 91.9 DEF. K100

FIGURE 2.5-3

	Without CVS	With CVS
Engine Startup	+1.0" H_2O (Surge)	+0.4" H_2O
Engine Idle	+0.1	-0.35
Steepest Accel.	+1.0	+0.5
Fastest Cruise	+0.7	+0.15

Another operating requirement was that the temperature controller and the heat exchanger maintain T_p within ±5°F during the Federal Cycle. The following extremes were recorded using a Set Point of 122°F: Minimum, 117.5°F, Maximum, 125.5°F. The minimum T_p, 117.5°F, was recorded at the beginning of the test after the CVS had been preheated to 117.5°F. Had the system been fully up to the set point before starting the test, the minimum T_p would have been 122°F. Nevertheless, the CVS controlled T_p well within the ±5°F tolerance.

One more requirement was that the pressure at the exhaust/background air mixing point not be more than 1" H_2O below ambient at the maximum CVS flow rate. We measured less than a 0.5" H_2O drop on all AESi constant volume samplers.

The systems operator was instructed to operate the CVS such that:

1. 12.9" $H_2O \leq \triangle P \leq$ 13.1" H_2O
2. 9" $H_2O \leq P_p \leq$ 11" H_2O
3. 110°F $\leq T_p \leq$ 130°F
4. 68°F $\leq T_A \leq$ 86°F

No adjustments were required to meet these set points. The system was preheated for 10 minutes then run for 10 to 15 minutes each day to achieve stabilization. Once the T_p controller was cycling, the system was operating at the set points.

As safeguards to assure that tests would be neither inaccurate nor invalid, the following data were recorded: $\triangle P$; P_p; T_p; T_A; P_A; N. If any of these inputs were beyond the stipulated tolerances, the test could be saved by referring to mass flow data pertinent to the altered test condition.

2.5.2 Exhaust Analysis Console

Calibration and qualification of the Exhaust Analysis Console

(EAC) were performed as stipulated by the contract. During qualification of each of the laboratories, most of the procedures discussed here were performed prior to the arrival of the Project Officer or his designated representative. The procedures were then repeated for qualification to the satisfaction of the Project Officer. Prerequisite to qualification of the EAC was the analysis of onsite laboratory standard calibration gases by EPA in Ann Arbor.

Items which had been checked and verified prior to individual instrument calibration included the following: 1) total EAC leak check; 2) check zero air quality with hydrocarbon free air; 3) adjust all analyzers to optimize performance as specified by individual instrument manuals; 4) check response times for all instruments. The following paragraphs describe individual analyzer optimization procedures and qualification items.

Hydrocarbon Analyzer (Beckman Model 400)

1. Obtain maximum sensitivity using the following method:
   a. Set fuel pressure to approximately 25 psig.
   b. Set air pressure to approximately 15 psig.
   c. Light burner (allow 30 minutes for warmup).
   d. Set sample pressure to approximately 4 psig.
   e. Flow zero grade air and set zero on meter or recorder.
   f. Flow mid-range calibration gas.
   g. With calibration gas flowing through instrument, adjust air pressure to obtain maximum upscale reading.
   h. Adjust sample pressure to obtain maximum reading and best response.
2. Develop instrument curves for ranges ten (10), one-hundred (100) and one-thousand (1,000). Verify results by recording results graphically.

Carbon Monoxide Analyzer (Beckman Model 315A or 315B)

1. Check and/or adjust instrument tuning.
2. Check and/or adjust demodulator switching pattern.
3. Check instrument response to water and 100% carbon dioxide (CO_2) on range 2.
4. Develop instrument curves for ranges described in Section 2.4.
5. Verify curve results graphically.

Carbon Dioxide Analyzer (Beckman Model 315A or 315B)

1. Check and/or adjust instrument tuning.

2. Check and/or adjust demodulator switching pattern.
3. Develop instrument curves for ranges described in Section 2.4.
4. Verify curve results graphically.

Oxides of Nitrogen Analyzer (TECO Model 10A)

1. Verify reaction chamber pressure to be in the 5-12 torr range.
2. Check response time through thermal converter versus bypass of thermal converter.
3. Develop instrument curves for ranges described in Section 2.4.
4. Verify curve results graphically.
5. Perform preliminary converter efficiency check.
6. Converter efficiency check will be performed as described in the Federal Register, Volume 36, Number 128, Friday, July 2, 1971.

EAC daily and weekly checks which were performed and recorded at each test facility are described below:

Daily Check

1. Leak check of HC, CO, CO_2, and NO instruments.
2. NO vacuum pump check.
3. HC analyzer zero and span.
4. CO analyzer zero, gain and tune.
5. CO_2 analyzer zero, gain and tune.
6. NO analyzer gain.

Weekly Check

1. Individual instrument curve check of each range used.
2. Converter efficiency.
3. CO response to 100% wet CO_2.

Examples of the daily and weekly instrument forms are presented in Figures 2.5-4 and 2.5-5. As a further guarantee that the dilute exhaust concentration was accurately determined, a known calibration gas was released into a previously purged and evacuated sample bag. Correct analysis of these bag contents insured that no error had been introduced by the bag sample transport plumbing.

2.5.3 Chassis Dynamometer

Clayton dynamometers were used with flywheels which could be engaged

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DAILY EAC

DATE	LEAK CHECK HC	LEAK CHECK CO	LEAK CHECK CO_2	LEAK CHECK NO	VAC. CHECK NO	VAC. CHECK NO_x	FID ZERO	FID GAIN	CO ZERO	CO GAIN	CO TUNE	CO_2 ZERO	CO_2 GAIN	CO_2 TUNE	NO GAIN	SHED-FID ZERO	SHED-FID GAIN	PIC
1/3/72	0.0	0.0	0.0	—	7.7	7.7	657	222	424	192	56	136	62	60	619	437	806	MEC
1/4/72	0.0	0.0	0.0	—	7.8	7.8	748	196	407	191	56	124	62	60	656	440	805	MEC
1/5/72	0.0	0.0	0.0	—	7.8	7.8	652	206	418	190	56	125	61	60	632	435	806	MEC
1/6/72	0.0	0.0	0.0	—	7.8	7.8	670	218	406	191	56	124	62	60	650	432	804	MEC
1/7/72	0.0	0.0	0.0	—	7.8	7.8	717	211	419	196	56	127	61	60	652	436	807	MEC

DAILY CVS

DATE	LEAK CHECK B 1	B 2	S 1	S 2	S 3	S 4	CONT.	ZERO BAG DEF.	HC BAG DEF.	HC BAG DEF.	PROPANE TEST Gp	HC	Δ	%E	D/A 50		PIC
1/3/72	0.0		0.0	0.0			0.0	0.9	1.0	95.0	94.9	35.7	35.2	.5	1.42	51.0		MEC
1/4/72	0.0		0.0	0.0			0.0	1.0	1.1	95.0	94.9	35.8	36.3	.5	1.38	51.0		MEC
1 5 72	0.0		0.0	0.0			0.0	1.0	1.1	95.0	94.8	35.9	35.97	.07	0.2	50.0		MEC
1 6 72	0.0		0.0	0.0			0.0	1.1	0.9	95.0	94.9	35.4	35.9	.5	1.4	50.0		MEC
1/7/72	0.0		0.0	0.0			0.0	1.2	1.0	95.0	94.9					50.0		MEC

MAINTENANCE: NONE

LABORATORY LOS ANGELES SUPERVISOR [signature] WEEK ENDING 1/8/72 LOG NO. 1004

6121a

FIGURE 2.5-4

AESi
AUTOMOTIVE ENVIRONMENTAL SYSTEMS, INC.

WEEKLY CHECK

INST	AESi RANGE	RANGE	SPAN		MID RANGE		MID RANGE		MID RANGE		MID RANGE		MID RANGE		MID RANGE		ZERO	P.I.C
			CONC.	DEF.	CONC.	DEF.	CONC.	DEF.	CONC.	DEF.	CONC.	DEF.	CONC.	DEF.	CONC.	DEF.	DEF.	
FID	2	10	116.4	94.2	74.1	62.9	27.2	22.2	10.4	7.4								
	3	100	1003	95.0	611	58.3	198	18.2	96.3	9.0								
	4	1000	9405.8	72.4	5223	51.0	2403	23.2										
CO	1	1-H																
	2	2-H	5.76	95.5	1.49	37.4	1.20	30.2										
	3	3-H																
	4	1-L	1.162	94.0	.2143	30.9												
	5	2-L																
	6	3-L	.2143	69.8	.1026	38.0												
CO_2	1	1																
	2	2	5.93	95.3	3.33	56.4												
	3	3	3.013	77.8	3.07	78.8	1.07	30.8										
NO-NO_x	4	100	100.8	70.0	100.8	70.0												
	5	250	250.0	95.0	198.6	76.0	100.8	39.0										
	6	1000	250.0	24.0	100.8	10.3												

	CONVERTER CHECK		
	DEF. START	DEF. END	TIME E.T.
NO	38.0	20.5	15 MIN
NO_x	60.0	60.0	15 MIN

	SHED LEAK CHECK		
	DEF. START	DEF. END	TIME E.T.
FID	63.2	63.2	1 HR

	100% CO_2 DEF.	WET 100% CO_2
CO	0.5	0.[illegible]

MASTER CURVE

EFF RUN #_____

LABORATORY LOS ANGELES SUPERVISOR [signature] WEEK ENDING 1/8/72 LOG NO. 1004

FIGURE 2.5-5

to simulate vehicle inertia. The attached speedometer was driven by the rear rolls which are idlers. The flywheels and the power absorption unit are driven by the front rolls. The speedometer and the horsepower indicator were calibrated on site. The torque bridge and dash pot were set up in accordance with manufacturer's instructions.

The speedometer was calibrated first. A 60 Hertz strobe light or Strobotac was beamed at the rolls while an automobile was driven at a rate which caused the rolls to appear stationary. This rate was 3600 RPM. The surface velocity of the rolls at 3600 RPM was 46.3 MPH. The speedometer gain control was adjusted such that the indicator read 46.3 MPH at 3600 Roller RPM. A second tach/generator was provided and driven by the front rolls. A 0 to 12 volt DC voltmeter was connected to this second tach generator. A plot was then made showing front roll voltage versus rear roll MPH. In this way the speed of the front rolls could later be determined independently of the rear roll speed.

The indicated road horsepower, a figure derived electrically from roll RPM and torque from the power absorption unit, was plotted versus actual absorbed road horsepower, as illustrated in Figure 2.5-6, Dynamometer Road Load Horsepower Calibration Sheet (DRL). The inertia wheels provided the means of calibrating per Federal Register, Volume 35, No. 219, Part II, dated November 10, 1970; Appendix B, pp. 17312, and 17313.

2.5.4 Evaporative Emissions SHED and Fuel Conditioning Cart

In accordance with SAE J171 the following equipment was provided:

1. Thermocouples to monitor SHED and fuel temperature.
2. A Beckman Model 400 Flame Ionization Detector.
3. An absolute pressure manometer or barometer.
4. A calibrated mercury thermometer.
5. A U tube water manometer.

Prior to propane calibration tests in accordance with SAE J171 the Flame Ionization Detector was calibrated utilizing the laboratory standard propane calibration gases. A calibration test was then performed in accordance

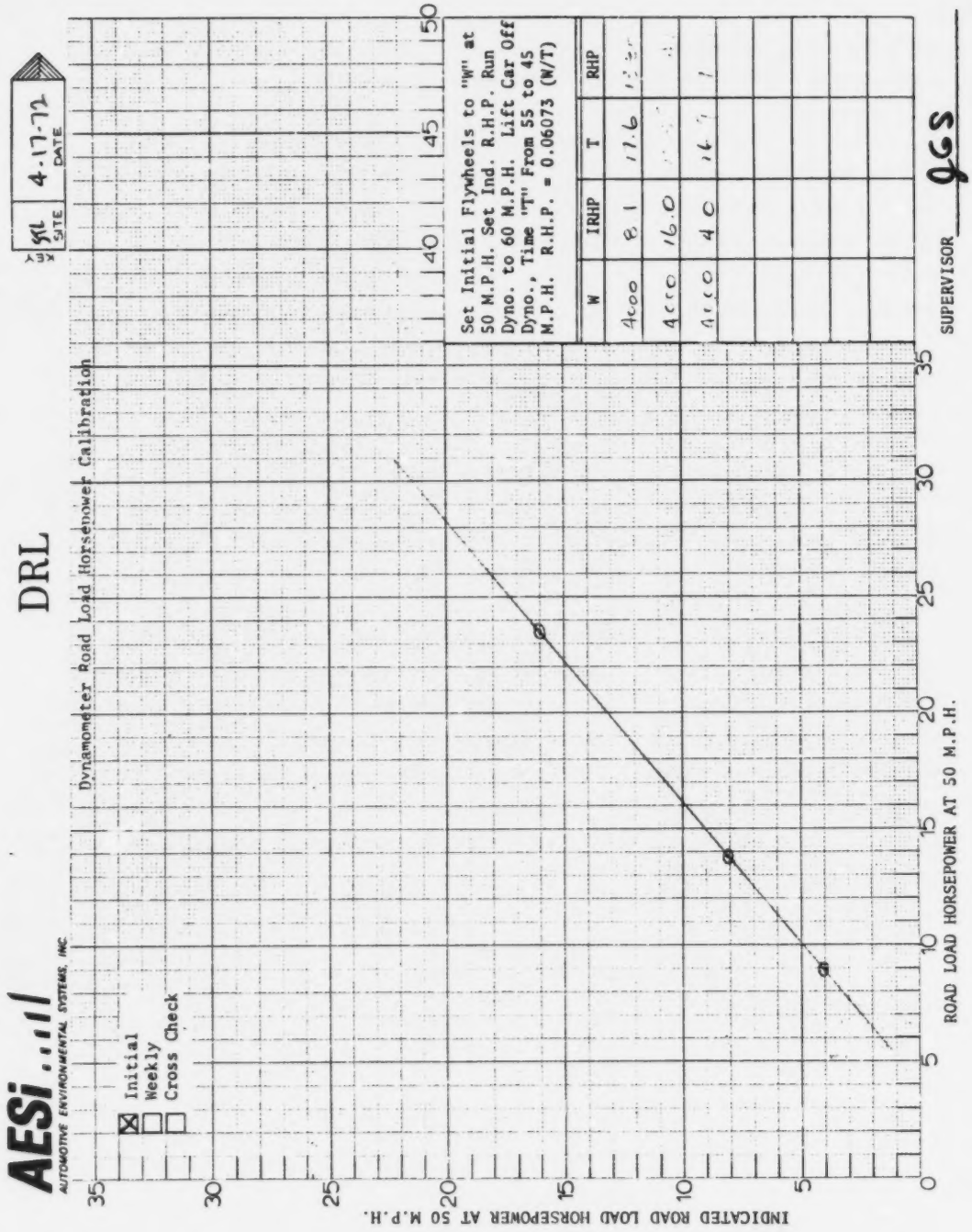

AESi
AUTOMOTIVE ENVIRONMENTAL SYSTEMS, INC.
DRL
Dynamometer Road Load Horsepower Calibration
KEY SIL SITE
4-17-72 DATE
Initial
Weekly
Cross Check
Set Initial Flywheels to "W" at 50 M.P.H. Set Ind. R.H.P. Run Dyno. to 60 M.P.H. Lift Car Off Dyno., Time "T" From 55 to 45 M.P.H. R.H.P. = 0.06073 (W/T)
W
IRHP
T
RHP
4000
8.1
11.6
4000
16.0
4000
40
16
SUPERVISOR GCS
INDICATED ROAD LOAD HORSEPOWER AT 50 M.P.H.
ROAD LOAD HORSEPOWER AT 50 M.P.H.
0
5
10
15
20
25
30
35
40
45
50

FIGURE 2.5-6

with SAE J171, Appendix B. Results of the initial and subsequent SHED calibrations were less than 50% of the allowable error.

In addition to propane injection in accordance with SAE J171, the U tube manometer was connected to the sample fitting. The door was sealed and air was injected through the propane injection fitting to obtain a differential pressure inside the SHED of about 1.0" H_2O. One hour later the manometer indicated a stable $\triangle P$ of 1.0" H_2O. The following morning, after unrecorded changes in ambient temperatures and pressures, the manometer indicated a marginal $\triangle P$ on the order of 0.1 to 0.2" water. However, the Tedlar roof windows and doors were still bulging indicating the pressure within the SHED had been maintained.

Leak tests on the SHED were performed in accordance with SAE J171. A typical hydrocarbon retention or leak test involved the injection of 27.7 grams of propane resulting in a loss of 0.044 grams per hour. In terms of percent leakage this was 0.17% per hour.

No rigorous calibration of the fuel conditioning cart and peripheral equipment was required during the program with the exception of continuous calibration of temperature measurements. Since most temperatures were measured and controlled by the use of thermocouples in approximate ambient temperature ranges, the calibrated ASTM mercury filled glass stem thermometers were utilized as the primary calibration standards. In general, thermocouple readings are within ±1°F after calibration by the ASTM standard thermometer.

2.6 TEST PROCEDURES

2.6.1 Vehicle and Equipment Preparation

All vehicles tested in this program were inspected upon receipt from the vehicle owner. The inspection consisted of verification of the particular make, model year, type of engine, transmission and other information pertinent to the program. In addition, a cursory inspection was performed to determine that the vehicle was operating safely. Also, each test vehicle was inspected for any visible damage which was pointed out to the owner and noted on the appropriate forms.

For those vehicles which were subject to evaporative emission tests, the vehicle preparation consisted not only of the inspection upon receipt of the car from the owner, but the drive to the laboratory by the owner. The owner's normal driving techniques and idiosyncrasies effectively preconditioned the fuel system as well as the evaporative emission control system on those vehicles so equipped. A very minimum of test vehicles were picked up by the procurement personnel for this reason.

The need to test each vehicle in the as-received condition was of paramount consideration during the vehicle preparation procedures. Because of this important program need, measurements of vehicle operating parameters such as basic spark timing, spark advance, point dwell, idle speed, and idle mixture were performed on the vehicle following exhaust and evaporative emissions tests. In order to prevent any possibility of technicians upsetting any of the as-received adjustments, instruments were not attached to the test vehicles prior to the exhaust emissions test. A visual examination of the underhood area was performed in order to determine that gross malfunctions of the running gear would not occur. On several vehicles items such as broken spark plug wires, improperly installed air cleaners, and leaking fuel systems were observed. Such items were not corrected unless there was a specific safety hazard associated with that particular item.

All test equipment was thoroughly warmed up, calibrated, and inspected for proper operation prior to the performance of any tests.

The chassis dynamometer was thoroughly warmed up using either a company car or a non-test vehicle, if the dynamometer had not been used during the previous two hours. During the dynamometer warmup procedure, inertia and road load of the dynamometer were properly set for the following test car. In addition, the dynamometer speed indicator was calibrated and checked against the driver aid to insure that both speed indications were identical.

The exhaust analysis console was normally left operating during the daylight hours. All instruments were left in a standby status with either dry nitrogen or dry air continuously flowing through the instruments. Therefore, it was normally not necessary to perform any preparation on the exhaust analysis console prior to testing with the exception of the routine calibration procedures. In the event that the exhaust analysis console or any instruments were shut down for any length of time prior to testing, a minimum warmup period of one half hour was required prior to use. The NO_x instrument ozone generator was normally turned off each night. About ten minutes warmup time was provided prior to use of the NO_x instrument. Normally, however, this warmup time occurred while other instruments were being calibrated or while the vehicle was being prepared for testing.

The constant volume sampler does require approximately one hour warmup for precise measurement prior to testing, if it had not been operated during the previous 24 hour period. If operation was performed in the last 24 hours, less warmup time was required. The relatively high thermal mass of the 4 inch stainless steel flexible duct, heat exchanger, positive displacement blower and sample pumps necessitated thorough warmup to assure precise temperature control. The CVS is equipped with controls to permit rapid heating of the heat exchanger and blower. The constant volume sampler was turned on and operated early in the morning to insure that the temperature stabilized by the time testing was initiated for the day. The CVS was connected to the vehicle used for dynamometer warmup, thereby removing exhaust from the building and warming the flexible duct and mixing plenum.

No specific preconditioning procedures were utilized for the SHED with the exception of insuring that high background hydrocarbon levels were

not present in the SHED prior to testing. The flame ionization detector utilized for SHED hydrocarbon determinations was always warmed up and calibrated prior to use.

2.6.2 Federal Exhaust Emission Testing Procedures

All cold start exhaust emissions tests were performed with few exceptions in accordance with the procedures stipulated in the Federal Register, Volume 35, No. 219, dated November 10, 1970; Volume 36, No. 55, dated March 20, 1971; and Volume 36, No. 128, dated July 2, 1971. The preconditioning procedure was performed by the vehicle owner while driving his car to the test facility, rather than preconditioning the vehicle in accordance with the Federal Test Procedures. Also, fuel contained in the vehicle tank or a popular commercial fuel was used rather than the specified test fuel. The exhaust analysis console was essentially that required for the 1972 Federal Test Procedures with the addition of a CO_2 analyzer. The contract required that the test procedure be modified slightly to permit continuous analysis of the exhaust/air mixture. This modification was basically operational in nature and did not effect any significant change in test results obtained by either the 1972 or 1975 Federal Test Procedures.

Another modification to the test procedure used in the program, which differs slightly from the 1972 Federal Test Procedure was that separate sample and background bags were collected during the cold transient portion (0 - 505 seconds) as well as the cold stabilized portion (506 - 1372 seconds) of the Federal Test. The Federal procedure calls for sample collection of one sample bag and one background bag during both of these portions. The results from the cold start portion of the test, however, should be identical to the prescribed 1972 procedure because mass calculations were performed on each of the transient and stabilized portions separately.

Following the cold transient and stabilized portions of the test, the ten minute soak was performed as stipulated for the 1975 Federal Test Procedure. After the soak, the hot transient test and the hot stabilized test were performed using separate sample and background bags for each portion. The only difference expected in the results from the actual Federal Procedure and the slightly modified procedure used in this program are attributed to those

differences in background emission levels between the transient and stabilized portion of the test.

The test fuel utilized for the Federal exhaust emissions tests was the fuel received in the vehicle tank. In a few cases it was necessary for AESi to top up the fuel tank with a commercially available gasoline. The use of tank fuel, however, was not allowed for those cars which were subjected to evaporative emissions tests. In this case a popular commercially available fuel was obtained and utilized in accordance with the SHED procedure stipulated in the SAE J171 Technical Report.

Data accumulated during the Federal Test Procedure consisted of both volumetric and mass measurements for each of the portions of the procedure, i.e., cold transient, cold stabilized, hot transient, and hot stabilized. Mass results were calculated for the cold transient and cold stabilized portion and presented as grams per vehicle mile. These results have been referred to as MW 1 or the 1972 Federal Test Procedure Results. In addition, the 1975 Federal Test Procedure results were calculated by combining the mass values from the cold transient, cold stabilized, and hot transient portion of the test in accordance with the weighting factors provided by the 1975 Testing Procedure. This was referred to as MW 3 or the 1975 Federal Test Procedure. Additional discussion relating to calculation of results by these modified procedures is found in Section 2.7 entitled "Data Handling".

2.6.3 Acceleration/Deceleration Sequence

In order to obtain information relating to emissions from the various accelerations and decelerations encountered by the motoring public in normal driving, driver habit data from another study were first analyzed by the Project Officer. These data, obtained in a survey of driving habits in the Los Angeles basin, revealed that accelerations and decelerations conformed to several speed-time profiles which had a characteristic "S" shape rather than the typical linear characteristic. Sixteen acceleration and deceleration profiles were developed between all combinations of 0 mph, 15 mph, 30 mph, 45 mph and 60 mph. Average acceleration or deceleration rates were used in 20 modes between the various speed combinations. Also, acceleration and deceleration rates higher and lower than the average rate were used for the remaining 12 modes. These

12 modes were performed only between all combinations of 0 mph, 30 mph and 60 mph.

The 32 modes were combined, by EPA, into a sequence for ease of driving, with short steady state cruises or idles connecting the end of one mode and beginning of the next. Figures 2.6-1 depicts the 32 modes, time in mode, average speed and average rate of acceleration. The complete sequence, which takes 1054 seconds to perform, is tabulated on a time versus speed basis in Section 4.3 of the Appendix.

A dilute exhaust/air sample was continuously extracted from the CVS, and analyzed in the exhaust analysis console. The output signals were continuously recorded on strip chart recorders while the sequence was performed. Each mode change event was indicated on the strip charts. The HC, CO, CO_2 and NO_x emissions values were then determined by analyses of the strip charts. Mass emissions during each mode were then calculated using the integrated exhaust concentration values, background concentration values, CVS mass flow rate, and distance traveled during each mode. The mass emissions for each mode are referred to as Acceleration/Deceleration Sequence Mode Results.

In addition to continuous sampling and analysis of vehicle effluents during the acceleration/deceleration modes, the CVS dilute bag sampling technique was used to collect emissions from the entire sequence, including the short steady states connecting each mode. The mass emissions obtained by this method are referred to as Acceleration/Deceleration Sequence Bag Results.

The acceleration/deceleration mode results were combined with the steady state mass emission results (described in Section 2.6.4) to synthesize composite mass emission values for the complete sequence. These results are called Acceleration/Deceleration Sequence Calculated Results, and may be compared to Acceleration/Deceleration Sequence Bag Results. The calculations for obtaining the "calculated" results appear in Section 2.7.

Some problems were encountered during the acceleration/deceleration sequence which were not anticipated prior to testing and had not been encountered in other types of emissions testing. The first problem was the tendency for some

FIGURE 2.6-1

ACCELERATION/DECELERATION DRIVING SEQUENCE

Mode No.	Mode Type	Mode Speed Range (mph)	Time in Mode (sec)	Average Speed (mph)	Average Acceleration Rate (mph/sec)	Distance (miles)
1	Accel	0-30	12	18.05	2.50	0.0602
2	Decel	30-0	16	16.66	-1.88	0.0741
3	Accel	0-15	8	9.04	1.88	0.0201
4	Accel	15-30	11	23.07	1.36	0.0705
5	Accel	30-45	13	37.65	1.15	0.1360
6	Decel	45-30	12	38.05	-1.25	0.1268
7	Accel	30-60	17	45.80	1.76	0.2163
8	Decel	60-45	12	51.48	-1.25	0.1716
9	Accel	45-60	14	52.54	1.07	0.2043
10	Decel	60-15	30	40.40	-1.50	0.3367
11	Accel	15-60	26	43.42	1.73	0.3136
12	Decel	60-0	21	33.83	-2.86	0.1973
13	Accel	0-60	32	37.27	1.88	0.3313
14	Decel	60-30	23	46.86	-1.30	0.2994
15	Decel	30-15	9	23.18	-1.67	0.0579
16	Decel	15-0	8	7.81	-1.88	0.0173
17	Accel	0-45	22	28.85	2.05	0.1759
18	Decel	45-15	16	31.33	-1.88	0.1392
19	Accel	15-45	18	30.55	1.67	0.1528
20	Decel	45-0	19	24.72	-2.37	0.1304
21	Accel	0-60	25	38.28	2.40	0.2654
22	Decel	60-0	28	33.88	-2.14	0.2634
23	Accel	0-30	15	17.73	2.00	0.0737
24	Accel	30-60	25	45.14	1.20	0.3134
25	Decel	60-30	18	47.23	-1.67	0.2362
26	Decel	30-0	10	15.99	-3.00	0.0444
27	Accel	0-60	38	38.01	1.58	0.4009
28	Decel	60-0	35	33.87	-1.71	0.3293
29	Accel	0-30	18	17.73	1.67	0.0886
30	Accel	30-60	21	44.55	1.43	0.2599
31	Decel	60-30	14	46.63	-2.14	0.1813
32	Decel	30-0	13	16.40	-2.31	0.0592

vehicles, particularly older or malperforming or improperly tuned vehciles, to heat up during the rapid series of accelerations and decelerations. Also, some vehicles exhibited brake fade on the rapid decelerations. These problems were allevaited by extending the steady state cruises during the middle portion of the acceleration/deceleration sequence on certain vehicles. Because of the extreme variation in vehicle exhaust flow rates and exhaust concentrations encountered, the analyzer output signal was frequently off scale or less than one-third scale. Also, on occasion, condensate was found in the continuous sample lines. Changes in CVS hardware, sample flow rate, calibration ranges and frequent range switching alleviated these problems and resulted in better traces of instrument output signals.

2.6.4 Steady State Emssion Measurements

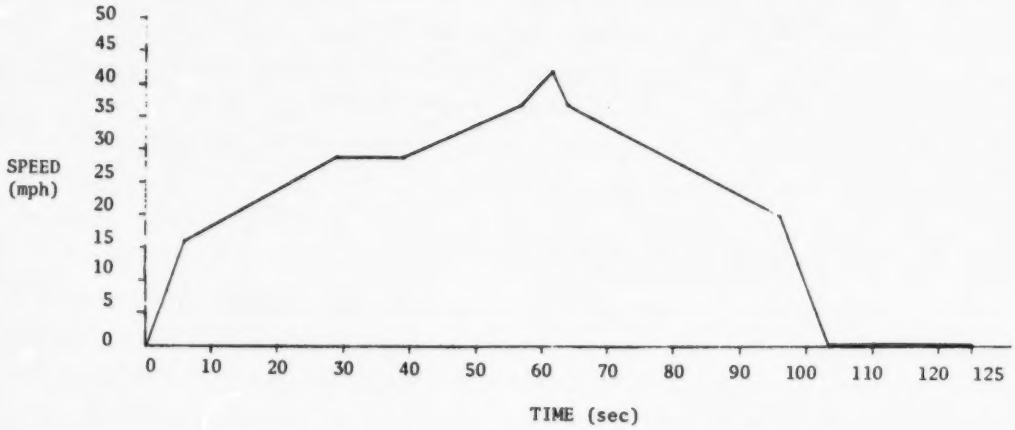
As described in Section 2.2, "Program Design," steady state mass emission values from the sample of consumer owned vehicles were required. Such information was not available from the Federal driving schedule and therefore steady states were performed at 0 (idle), 15, 30, 45, and 60 miles per hour. Samples were collected by the bag method utilizing the constant volume sampler. At least two minutes of sampling at an increased sample flow rate into the CVS bag was required to insure that an adequate sample was obtained. Also, at least one-half minute of warmup or stabilization at each of the steady state conditions was prerequisite to the two-minute sampling period. In addition to providing basic emission information for steady state conditions, these values were used as the steady state modes linking initial and terminal speed of the acceleration/deceleration sequence described previously.

2.6.5 Federal Short Cycle Tests

The Federal short cycle test depicted in Figure 2.6-2 was also performed on all test cars. The Federal Short Cycle was developed by EPA to represent the 1372-second Federal Driving Schedule as stipulated in the 1972 Federal Test Procedures. This cycle consists of nine driving modes which occur most commonly in the Federal Driving Schedule. The CVS technique was utilized during the 125-second test. Elevated CVS bag flow rates were required in order to obtain an adequate bag sample, as in the case of the steady state tests. Sample measurements included hydrocarbons, carbon monoxide, carbon dioxide, and oxides of nitrogen in addition to background measurements.

FIGURE 2.6-2

FEDERAL SHORT CYCLE



Mode No.	Type	Speed Range	Time in Mode (sec)	Average Speed (mph)	Average Acceleration Rate (mph/sec)
1	Accel	0-16	6.0	8.00	2.67
2	Accel	16-29	23.0	22.50	0.57
3	Cruise	29	10.0	29.00	0.00
4	Accel	29-37	18.0	33.00	0.44
5	Accel	37-42	4.5	39.50	1.11
6	Decel	42-37	2.5	39.50	-2.00
7	Decel	37-20	32.0	28.50	-0.53
8	Decel	20-0	7.5	10.00	-2.67
9	Idle	0	21.5	0.00	0.00

2.6.6 Evaporative Emissions Test Procedure

The evaporative emissions test procedure was performed on a subsample of test vehicles in Los Angeles and Denver. The procedure used for evaporative emissions was that stipulated in SAE Technical Report J171 entitled "Measurement of Fuel Evaporative Emissions From Gasoline Powered Passenger Cars and Light Trucks Using the Enclosure Technique." An exception to the procedure was that the 1972 Federal Urban Driving Schedule was used rather than the specified 7-mode cycle, to warm up the vehicle prior to hot soak loss measurements. Also, preconditioning was effected by the vehicle owner as he drove his vehicle to the laboratory. In accordance with the contract, the measurement of running evaporative losses was deleted.

The fuel required for evaporative emissions testing was a popular commercially available, premium grade fuel. The original tank fuel was removed from the test car. Prior to the diurnal loss measurements, temperature conditioned test fuel was pumped into the vehicle tank in accordance with the test procedure. The fuel filler cap which was originally provided on the test vehicle had been removed previously, drilled in the appropriate location and fitted with a fine wire thermocouple for internal fuel temperature measurement. When the cap was replaced, care was taken to ensure that the thermocouple end was immersed in the fuel. Although not called for in the contract, external fuel tank temperature was measured in addition to internal fuel temperature, in an attempt to relate the two temperatures. Thermocouples were affixed to the tank by silicone rubber cement or tape.

After the vehicle tank was filled to the appropriate volume with temperature conditioned test fuel and the filler cap installed, silicone rubber heating pads were placed around the tank below the fuel level. The heating pads were affixed by the use of tape or heavy duty permanent magnets. In accordance with the SHED procedure the temperature of the fuel was elevated at a relatively uniform rate to attain the desired temperature of 84°F. Figure 2.6-3 depicts a Temperature Achievement Plot (TAP) which was developed jointly by EPA and AESi personnel to achieve a uniform rate of heating. This temperature achievement plot was utilized for most of the evaporative emissions tests in the Los Angeles facility. The use of the TAP is relatively simple and effective. During the first few minutes of the one hour diurnal soak, fuel temperatures are plotted versus time. A straight line drawn through the last

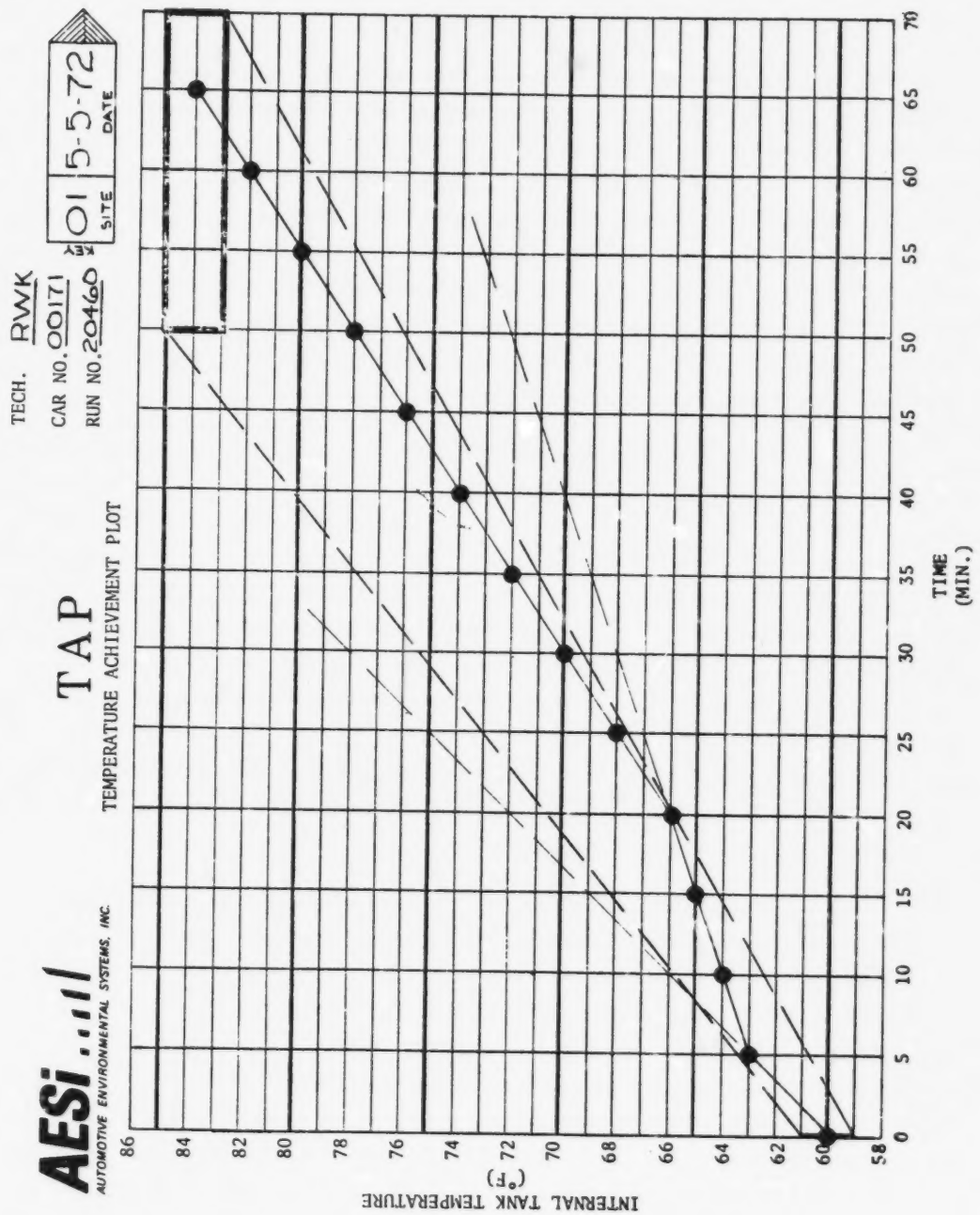

AESi
AUTOMOTIVE ENVIRONMENTAL SYSTEMS, INC.
TAP
TEMPERATURE ACHIEVEMENT PLOT
TECH. RWK
CAR NO. 00171
RUN NO. 20460
SITE 01
DATE 5-5-72
INTERNAL TANK TEMPERATURE (°F)
TIME (MIN.)
86
84
82
80
78
76
74
72
70
68
66
64
62
60
58
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70

FIGURE 2.6-3

two points can then be extrapolated to determine if the desired temperature and time coordinates will be achieved. The visual indication of temperature versus time enable the technician to obtain a uniform heating rate to the desired temperature by making only two or three relatively minor temperature adjustments.

Following diurnal loss measurements the test vehicle was pushed onto the chassis dynamometer. Of course, the dynamometer had previously been warmed up and adjusted to the correct inertia and horsepower. The Federal exhaust emissions test procedure was then performed. However, only the cold start, comprised of the cold transient and cold stabilized portions, the ten minute soak, and the hot start, hot transient portion were performed. In all evaporative tests the hot start, hot stabilized portion of the test was deleted. Immediately following the cold and hot start test, the vehicle was driven into the SHED and the SHED sealed for the hot soak loss measurement. During this portion of the evaporative emission test, frequent measurement of air temperature within the SHED was required. This was because certain cars had a tendency to heat the SHED more rapidly than others and the maximum temperature of 90° could be exceeded rapidly unless cooling fans were directed against the external SHED walls.

After the determination of hot soak losses, the vehicle was removed from the SHED and a hot start Federal driving schedule was performed. Exhaust emissions were not measured during this hot start, however, as this was merely a method for preconditioning the vehicle prior to the performance of the remaining exhaust emissions tests.

Fuel samples were obtained using the bottom filling technique in a sealed, plated, sheet metal container. The importance of proper fuel sample handling techniques was realized and samples were carefully taken and stored in a refrigerator until fuel inspections were performed. The fuel inspections consisted of a determination of Reid vapor pressure by the ASTM method D 323, a distillation by the ASTM method D 86 including determination of temperatures at initial boiling point, final boiling point and the 5, 10, 15, 20, 30, 40, 50 and 90 percent evaporated points. In addition, a hydrogen/carbon atom ratio determination was performed on the fuel samples. The method utilized initially

was to be the ASTM method D 1018 or the alternate beta ray absorption technique. After quoting on these H/C ratio procedures, however, fuel inspection laboratories became reluctant to perform any hydrogen/carbon ratio analyses which related to evaporative losses. These analyses were subsequently obtained through a private laboratory by the use of a chromatographic technique which identified all hydrocarbon constituents in the initial boiling point to 130°F distillation cut of the test fuel sample. Identification of the hydrocarbon peaks and their molal concentrations was obtained. A computer program was devised to calculate the hydrogen/carbon ratio on the basis of these values. Data and procedures for calculating evaporative losses are more fully described in Section 2.7 entitled "Data Handling."

2.6.7 Daily Test Schedule

The following is a summary of the daily test schedule which was performed on those vehicles subjected to exhaust emission tests only.

1. After receipt of vehicle, preparation of appropriate vehicle information forms and performance of the vehicle inspection, the vehicle was allowed to soak for the minimum 12 hour period.

2. Following the soak a Federal cold start test was performed. The cold start consisted of sample and background collections for each of the transient and cold stabilized portions.

3. A 10 minute soak with the engine off was then performed.

4. The Federal hot start test was performed and involved the collection of separate background and sample bags for each of the hot transient and hot stabilized portions.

5. Following the Federal hot start test, the acceleration/deceleration sequence was performed. During the sequence a continuous sample of the diluted exhaust air stream was measured by the hydrocarbon, CO, CO_2, NO_x instruments and a continuous recording generated. In addition, background and sample bags were collected during a complete accel/decel sequence.

6. Steady state tests were then performed using the bag collection technique in the following order: 45, 15, idle, 30, and 60 miles per hour.

7. The last item to be performed was the Federal short cycle during which a bag sample was collected.

8. Following testing, appropriate vehicle information such as basic spark timing, spark advance, point dwell, idle RPM, and idle mixture (undiluted CO) and other pertinent engine operating parameters were measured and recorded.

Following is the daily test procedure used on vehicles subjected to evaporative and exhaust emissions measurements.

1. After receipt of the vehicle from the consumer and preparation of appropriate vehicle information forms, the vehicle inspection was performed. The vehicle was then readied for the 12 hour (minimum) soak.

2. The fuel remaining in the vehicle fuel tank as received was drained from the test vehicle. Concurrently, the fuel filler cap was modified to accept the thermocouple for measurement of internal fuel temperature.

3. Following the minimum 12 hour soak the temperature conditioned fuel was pumped into the fuel tank. During the soak thermocouples were connected and the silicone rubber heating pads were installed on the vehicle. The temperature of the fuel was increased in accordance with the prescribed procedures. The diurnal loss test was then performed.

4. The Federal cold start exhaust emission test was performed within 15 minutes after removal of the test vehicle from the SHED.

5. The Federal cold start procedure was performed utilizing separate sample and background bags for each of the cold transient and cold stabilized portions.

6. Following the cold start, the normal 10 minute soak with engine off was performed.

7. The hot transient portion of the Federal hot start test was then performed using the bag collection technique.

8. Immediately following the hot transient portion, the vehicle was removed from the dynamometer and driven into the SHED at as low an engine load as possible. The time allowed for removal of vehicle from dyno to engine shutoff in SHED was about one minute.

9. Thermocouple wires were connected to display devices. The SHED was then sealed and the hot soak losses were measured. The time allocated for hot soak losses was one hour.

10. After the hot soak losses, the test vehicle was removed from the SHED and installed on the dynamometer. A hot start Federal driving schedule involving the hot transient and hot stabilized

portions was then performed. However, exhaust samples were not collected during this test because it was utilized as a vehicle warmup procedure prior to the remaining tests.

11. Following the warmup cycle, the acceleration/deceleration sequence was performed utilizing background bag, sample bag and continuous sampling.

12. Steady state tests were then performed at 45 mph, 15 mph, idle, 30 mph, and 60 mph.

13. The last test to be performed was the Federal short cycle utilizing the bag collection technique.

14. Following testing, appropriate vehicle information such as basic spark timing, spark advance, idle RPM, idle mixture (undiluted CO), point dwell, and other pertinent engine operating parameters were measured and recorded.

2.7 DATA HANDLING

2.7.1 Data Collection

Data collection and the associated data reporting forms are perhaps the most important items in any investigative or research program. AESi has developed several data forms for this program such as the Test Data Sheet shown in Figures 2.7-1 and 2.7-2. These particular forms are arranged in keypunch format. Instrument scale deflections and instrument ranges were entered on these sheets after each test.

The Daily Instrument and CVS System form, CVS Propane Recovery form, and Weekly Check form, illustrated in Section 2.5, were designed to assure that each instrument curve was within limits of the originally developed curve. This form also provided for an NO_x converter check, a CO_2 response check of the CO instrument, and calibration curve update information. This form is illustrated in Section 2.5 also.

Proven data handling procedures were used to ensure the continuous and accurate transmission and verification of data. The project engineer or test supervisor at each facility reviewed the test results and verified their validity. At the corporate offices the tests were logged and inspected again to determine if any errors or anomalies were present. If errors were found which were not correctable at the AESi corporate office, the questions were referr ' immediately to the project engineer for resolution.

2.7.2 Data Processing

After resolution of obvious errors the information on the test data sheet was then keypunched and verified by the AESi Computer Sciences Department. A specially designed edit program analyzed each data field on each card for errors or omissions. The test results were then calculated and edited by the computer to determine if results were within prescribed limits. Figure 2.7-3 illustrates the computer edit output for a vehicle indicating that the CVS blower counter was out of range on the accel/decel bag sample. Figure 2.7-4 indicates that the emissions data was of lower magnitude than the background data. Any necessary corrections were then punched on cards

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AUTOMOTIVE ENVIRONMENTAL SYSTEMS, INC.

TEST DATA SHEET

	PRJ NO.	CAR NO.	RUN NO.	DATE	TIME	PIC	YR	MAKE	MODEL
01	01210	00015	00078	111571	1500	RAM	70	FORD	MUSTA

CID	BBL	TRN	INRT	RDHP	DB	WB	BARO	CYL	A/C	EVP	EXH	PCV	ODOMR	FT	VTP
351	2	0	3000	103	72	55	29.92	8	1	1	1	1	27999	20	0

COLD TRANSIENT: 02, 03

	HC R	HC DEF.	CO R	CO DEF.	CO_2 R	CO_2 DEF.	NO_x R	NO_x DEF.	NO R	NO DEF.	TEMP	PRESS	COUNT	RPM	MPH
S	3	83.3	2	72.0	2	52.9	2	38.2	2	32.0	120	12.7	18560		.
B	3	0.5	2	0.1	2	1.0	2	0.1	2	0.1					

COLD STABILIZED: 04, 05

	HC R	HC DEF.	CO R	CO DEF.	CO_2 R	CO_2 DEF.	NO_x R	NO_x DEF.	NO R	NO DEF.	TEMP	PRESS	COUNT	RPM	MPH
S	3	16.9	2	9.8	2	40.0	2	31.2	2	23.8	115	12.7	31706		.
B	3	0.5	2	0.1	2	1.0	2	0.1	2	0.1					

HOT TRANSIENT: 06, 07

	HC R	HC DEF.	CO R	CO DEF.	CO_2 R	CO_2 DEF.	NO_x R	NO_x DEF.	NO R	NO DEF.	TEMP	PRESS	COUNT	RPM	MPH
S	3	32.5	2	13.0	2	53.0	2	70.3	2	53.0	120	12.7	18560		.
B	3	0.8	2	0.1	2	1.9	2	0.1	2	0.1					

HOT STABILIZED: 08, 09

	HC R	HC DEF.	CO R	CO DEF.	CO_2 R	CO_2 DEF.	NO_x R	NO_x DEF.	NO R	NO DEF.	TEMP	PRESS	COUNT	RPM	MPH
S	3	15.0	2	7.0	2	39.6	2	35.9	2	25.0	115	12.7	31666		.
B	3	0.8	2	0.1	2	1.9	2	0.1	2	0.1					

TUNE-UP INFORMATION: 10

IRPM	D-N	DWEL	IGNT	TTAD	MECA	VACA	SPVT	COL	IGW	CHK	PTC
610	D	30.0	+5.0	.	.	.	.				

FIGURE 2.7-1

PRJ NO. 01210 CAR NO. 00015 RUN NO. 00078

TEST DATA SHEET

AESi
AUTOMOTIVE ENVIRONMENTAL SYSTEMS, INC

		HC		CO		CO_2		NO_x		NO						
ACCEL/DECEL 11 12		R	DEF.	R	DEF.	R	DEF.	R	DEF.	R	DEF.	TEMP	PRESS	COUNT	RPM	MPH
	S	3	36.5	2	15.5	2	68.0	3	31.0	3	16.7	118	12.7	38571		.
	B	3	1.0	2	0.1	2	2.0	3	0.1	3	0.1					
STEADY STATE 14 45 15 45		R	DEF.	R	DEF.	R	DEF.	R	DEF.	R	DEF.	TEMP	PRESS	COUNT	RPM	MPH
	S	3	29.5	2	7.5	2	70.3	3	27.8	3	19.8	115	12.7	4388		.
	B	3	1.6	2	0.2	2	1.9	3	0.1	3	0.0					
STEADY STATE 14 15 15 15		R	DEF.	R	DEF.	R	DEF.	R	DEF.	R	DEF.	TEMP	PRESS	COUNT	RPM	MPH
	S	3	5.6	2	2.8	2	43.2	2	15.1	2	115	112	12.7	4389		.
	B	3	1.0	2	0.1	2	2.0	2	0.1	2	0.1					
		HC		CO		CO_2		NO_x		NO						
STEADY STATE 14 I 15 I		R	DEF.	R	DEF.	R	DEF.	R	DEF.	R	DEF.	TEMP	PRESS	COUNT	RPM	MPH
	S	2	68.0	2	1.0	2	28.2	1	9.5	1	8.2	110	12.7	4387		.
	B	2	4.8	2	0.0	2	1.5	1	0.1	1	0.1					
STEADY STATE 14 30 15 30		R	DEF.	R	DEF.	R	DEF.	R	DEF.	R	DEF.	TEMP	PRESS	COUNT	RPM	MPH
	S	3	14.0	2	2.9	2	46.2	2	33.5	2	27.7	113	12.7	4392		.
	B	3	1.0	2	0.0	2	1.8	2	0.1	2	0.1					
STEADY STATE 14 60 15 60		R	DEF.	R	DEF.	R	DEF.	R	DEF.	R	DEF.	TEMP	PRESS	COUNT	RPM	MPH
	S	3	44.9	2	25.0	2	99.4	3	60.3	3	39.6	115	12.7	4388		.
	B	3	1.0	2	0.1	2	2.0	3	0.1	3	0.1					
SHORT CYCLE 16 17		R	DEF.	R	DEF.	R	DEF.	R	DEF.	R	DEF.	TEMP	PRESS	COUNT	RPM	MPH
	S	3	43.0	2	11.0	2	49.0	3	15.0	3	9.0	115	12.7	4657		.
	B	3	0.2	2	0.1	2	1.6	3	0.1	3	0.1					

FIGURE 2.7-2

```
PROJ-03210 CAR NO.-00066 RUN NO.-00066 DATE-021672 YEAR-65 MAKE-VOLK MODEL-BEETL
CID-091 TRN-4 CYL-4 ODOMR-56000 DRY BULB-72. WET BULB-51. BAROM-29.10

CT        HC          CO          CO2         NOX         NO        T     P      N
B         40          152         437         1           1         120 10.50  9505
S         502         1794        7182        86          71
M         18.59       133.30      860.33      11.25       9.43      NOXC=  9.08  K=0.806

CS        HC          CO          CO2         NOX         NO        T     P      N
B         43          152         393         2           1         120 10.50 16234
S         457         1551        4940        36          33
M         28.46       193.94      990.41      7.60        7.20      NOXC=  6.13  K=0.806

HT        HC          CO          CO2         NOX         NO        T     P      N
B         43          243         437         3           3         120 10.50  9560
S         425         1521        7278        76          71
M         15.46       104.28      877.55      9.79        9.22      NOXC=  7.90  K=0.806

HS        HC          CO          CO2         NOX         NO        T     P      N
B         37          91          437         3           3         120 10.50 16251
S         374         1308        4844        33          30
M         23.13       168.82      961.12      6.86        6.17      NOXC=  5.53  K=0.806

COUNT 19487 OUT OF RANGE ON CARD 11   210030066000660

A/D       HC          CO          CO2         NOX         NO        T     P      N
B         42          61          524         2           2         120 10.50 19487
S         446         1825        9606        124         89
M         33.37       293.54      2374.79     33.24       24.04     NOXC= 26.81  K=0.806

SS4       HC          CO          CO2         NOX         NO        T     P      N
B         45          243         655         2           1         120 10.50  2250
S         202         1216        10749       85          75
M         1.49        18.70       304.75      2.61        2.34      NOXC=  2.10  K=0.806

SS1       HC          CO          CO2         NOX         NO        T     P      N
B         45          243         655         2           1         120 10.50  2250
S         139         943         4367        13          10
M         0.89        13.44       112.07      0.35        0.29      NOXC=  0.28  K=0.806

SS0       HC          CO          CO2         NOX         NO        T     P      N
B         45          243         655         2           1         120 10.50  2250
S         156         1034        2096        8           5
M         1.06        15.19       43.51       0.18        0.13      NOXC=  0.14  K=0.806

SS3       HC          CO          CO2         NOX         NO        T     P      N
B         45          243         655         2           1         120 10.50  2250
S         141         943         7230        33          30
M         0.91        13.44       198.50      0.97        0.91      NOXC=  0.78  K=0.806

SS6       HC          CO          CO2         NOX         NO        T     P      N
B         45          243         655         2           1         120 10.50  2250
S         245         1004        17564       137         102
M         1.90        14.61       510.47      4.27        3.18      NOXC=  3.44  K=0.806

SC        HC          CO          CO2         NOX         NO        T     P      N
B         31          213         524         4           4         120 10.50  2344
S         287         1216        5990        45          36
M         2.54        20.09       171.90      1.36        1.06      NOXC=  1.10  K=0.806

 1  21003006600066002167215OORQM65VOLKBEETL091142000  837251291040000156000120
13  210030056000660 650N 460  +10  58

ERROR COUNT =  1
```

FIGURE 2.7-3

PROJ-03210 CAR NO.-00122 RUN NO.-00021 DATE-020472 YEAR-70 MAKE-CADI MODEL-COUPE
CID-472 TRN-3 CYL-8 ODOMR-32000 DRY BULB-74. WET BULB-53. BAROM-29.23

AD	MODE	HC	CO	CO2	NOX	T	P	N
B		66	283	961	10	120	11.00	
S	1	516	3450	32158	250			225
M		7.13	101.24	1569.35	12.63			
S	2	294	3492	7421	30			300
M		3.91	111.12	352.02	1.15			
S	3	363	3940	16561	78			150
M		9.40	233.47	1566.96	7.16			
S	4	384	2350	25751	250			206
M		3.95	51.62	974.93	9.87			
S	5	451	1780	34610	250			243
M		2.91	22.84	809.21	6.04			
S	6	372	2350	14891	57			225
M		2.30	31.34	332.70	1.16			
S	7	956	12800	47918	250			318
M		5.55	157.58	929.16	4.97			
S	8	454	3870	18399	250			225
M		2.16	40.23	307.74	4.43			
S	9	459	1200	46313	250			262
M		2.14	10.02	782.80	4.33			
S	10	637	2066	14724	75			562
M		4.04	24.55	309.20	1.52			
S	11	550	1600	47590	401			487
M		3.19	17.45	974.60	8.54			
S	12	790	3338	12256	102			393
M		6.12	52.04	302.82	2.57			
S	13	117	800	4149	16			600
M		0.39	7.94	77.71	0.15			

SAMPLE DEFLECTION 1.5 LESS THAN BACKGROUND DEFLECTION 2.2

MASS CALCULATION -5.92 NEGATIVE

S	14	81	369	655	16			431
M		0.09	0.99	-5.92	0.12			

SAMPLE DEFLECTION 1.6 LESS THAN BACKGROUND DEFLECTION 2.7

MASS CALCULATION -10.23 NEGATIVE

S	15	81	368	699	16			168
M		0.18	1.99	-10.23	0.24			
S	16	107	400	4514	21			150
M		1.49	8.32	643.10	1.38			
S	17	474	3450	34960	307			412
M		4.05	63.45	1071.83	9.77			
S	18	849	1750	8423	49			300
M		7.16	26.99	216.46	1.19			
S	19	487	3730	33909	322			337
M		3.94	65.03	973.06	9.67			
S	20	534	2725	8566	51			356
M		5.42	57.00	279.46	1.59			
S	21	902	3436	44488	236			468
M		6.26	47.55	1033.05	5.60			
S	22	449	5220	11996	80			525
M		3.23	84.21	296.05	1.97			
S	23	438	3520	25049	178			281
M		6.01	105.56	1236.13	9.00			
S	24	465	3716	38113	397			468
M		2.52	43.85	746.71	8.12			
S	25	897	1120	12776	118			337
M		5.03	10.16	226.69	2.16			
S	26	417	3800	10178	28			187
M		6.26	126.71	522.49	1.05			
S	27	459	2500	38954	405			712
M		2.96	33.65	908.17	9.87			
S	28	609	2950	11996	150			656
M		4.59	45.43	295.89	3.92			
S	29	459	3450	22008	118			337
M		6.34	103.03	1077.46	5.77			
S	30	664	5748	15782	348			393
M		3.84	70.73	301.64	7.20			
S	31	445	3660	11737	150			262
M		2.32	41.74	209.59	2.85			
S	32	443	3380	6276	38			243
M		6.57	108.73	293.64	1.59			

ERROR COUNT = 4

FIGURE 2.7-4

and entered into the computer. Then a final edit was run and the completed test results were added to a master file maintained on magnetic tape. The various monthly and final data reports were generated from the master file. Figure 2.7-5 and 2.7-6 illustrate the individual test data printouts. Figure 2.7-7 illustrates the flow of data.

PROJ-01210 CAR NO.-00119 RUN NO.-00352 DATE-033172 YEAR-67 MAKE-MERC MODEL-COUGA
CID-390 TRN-0 CYL-8 ODOMR-59664 DRY BULB-75. WET BULB-71. BAROM-30.13

CT	HC	CO	CO2	NOX	NO	T	P	N
B	13	15	0	1	0	128	8.40	9510
S	844	6011	12614	63	48			
M	34.63	504.28	1666.78	8.62	6.65	NOXC=	10.16	K=1.178

CS	HC	CO	CO2	NOX	NO	T	P	N
B	8	15	0	0	0	128	8.40	16256
S	891	3556	8236	34	29			
M	62.87	509.06	1860.26	7.92	6.88	NOXC=	9.33	K=1.178

HT	HC	CO	CO2	NOX	NO	T	P	N
B	6	0	0	0	0	128	8.40	9506
S	978	4683	11552	66	54			
M	40.47	393.67	1525.80	9.12	7.47	NOXC=	10.75	K=1.178

HS	HC	CO	CO2	NOX	NO	T	P	N
B	6	15	0	0	0	128	8.40	16258
S	798	3412	8444	36	29			
M	56.40	488.42	1907.48	8.41	6.88	NOXC=	9.91	K=1.178

A/D	HC	CO	CO2	NOX	NO	T	P	N
B	8	45	0	1	0	127	8.50	19743
S	825	6500	14266	77	55			
M	70.70	1128.69	3919.14	22.03	15.61	NOXC=	25.96	K=1.178

SS4	HC	CO	CO2	NOX	NO	T	P	N
B	8	45	0	1	0	127	8.50	2250
S	917	10432	14856	57	55			
M	8.97	206.99	465.11	1.86	1.78	NOXC=	2.19	K=1.178

SS1	HC	CO	CO2	NOX	NO	T	P	N
B	8	45	0	1	0	127	8.50	2250
S	995	3840	5428	2	2			
M	9.74	75.63	169.94	0.05	0.04	NOXC=	0.06	K=1.178

SS0	HC	CO	CO2	NOX	NO	T	P	N
B	8	45	0	1	0	127	8.50	2250
S	758	3574	4804	2	2			
M	7.39	70.32	150.40	0.05	0.04	NOXC=	0.06	K=1.178

SS3	HC	CO	CO2	NOX	NO	T	P	N
B	6	60	0	1	0	127	8.50	2250
S	623	4215	10372	30	29			
M	6.09	82.79	324.73	0.96	0.94	NOXC=	1.13	K=1.178

SS6	HC	CO	CO2	NOX	NO	T	P	N
B	6	60	0	1	0	127	8.50	2250
S	623	11851	21232	149	136			
M	6.09	234.96	664.73	4.86	4.45	NOXC=	5.73	K=1.178

SC	HC	CO	CO2	NOX	NO	T	P	N
B	4	45	0	0	0	127	8.50	2372
S	710	3700	9068	42	39			
M	7.34	76.78	299.30	1.44	1.34	NOXC=	1.70	K=1.178

1 2100103520011900331720950RWK67MERCCOUGA390403500 1127571301381011596641 70
13 210010352001190 560D 440 +00 35

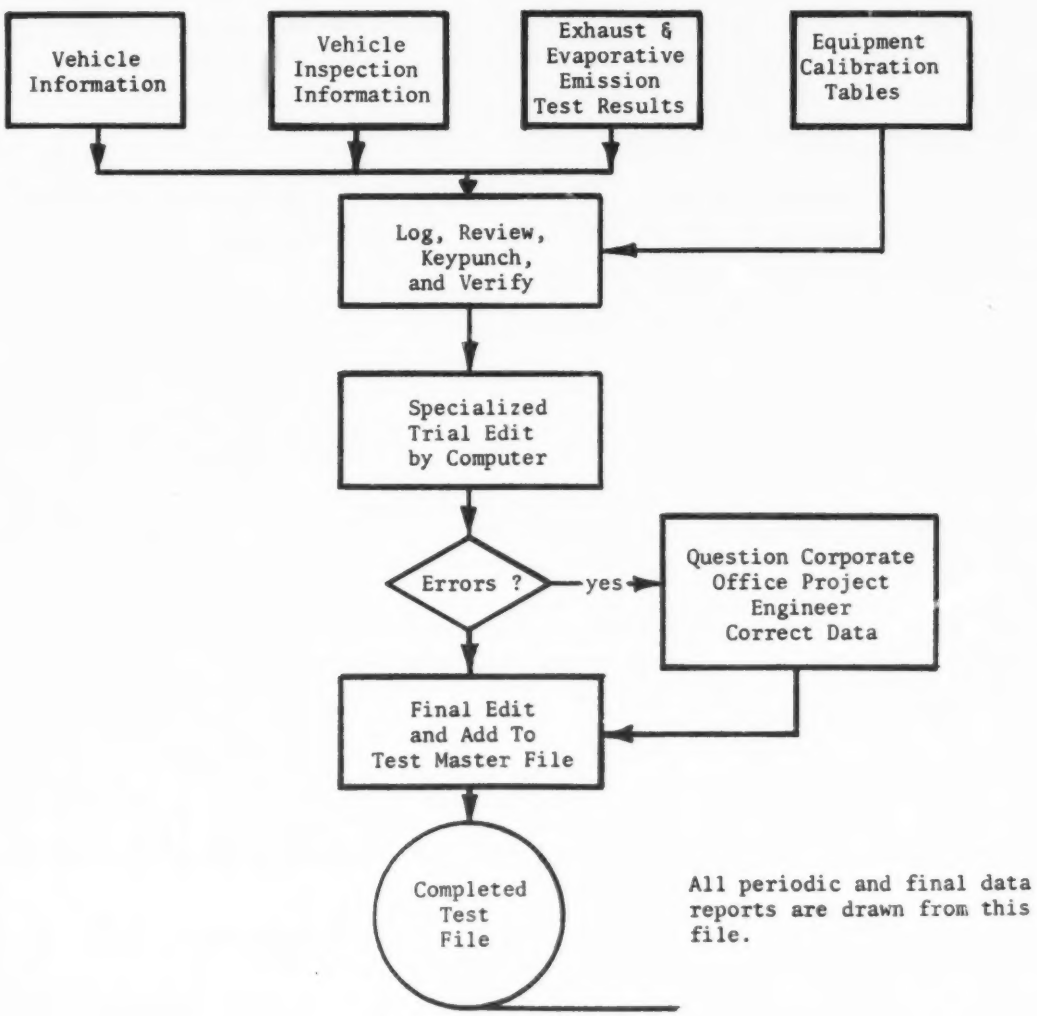
FIGURE 2.7-5

PROJ-01210 RUN NO.-0078 CAR NO.-00150 DATE-111571 YR-70 MAKE-FORD
MODEL-MUSTA CID-351 TRN-C CYL-8 ODOMR-27999 DRY BULB-72. WET BULB-55.
BAROM-29.92 BBL-2 INRT-3000 RDHP- 10.3 AC-1 PCD-111 FT-2 VTP-

A/D	-----H C----		-----C O----		-----CO2----		-----NOX----		T	PRESS
BCKGRND		11		6		538		1	118	12.70
MODE	SAMPLE	MASS	SAMPLE	MASS	SAMPLE	MASS	SAMPLE	MASS		
1	495	3.90	711	11.5	24038	601.0	262	69.7		
2	129	1.03	375	6.5	8631	224.2	99	28.5		
3	241	3.71	450	14.4	15363	757.0	63	33.0		
4	397	2.43	691	8.7	20237	393.9	47	9.6		
5	638	2.42	1223	9.5	29696	356.5	356	45.4		
6	322	1.19	884	6.8	13988	163.3	310	39.2		
7	676	2.11	1270	8.1	34213	338.8	168	17.5		
8	295	.80	1110	6.3	20416	178.4	853	79.9		
9	300	.80	1442	8.0	34213	295.5	302	27.6		
10	333	1.16	705	5.1	13988	153.6	207	24.6		
11	665	2.19	1480	10.0	34213	357.8	398	44.1		
12	526	2.21	791	6.8	12786	166.9	369	52.4		
13	681	2.62	425	3.3	34213	417.3	633	81.9		
14	399	1.21	991	6.2	15191	144.3	304	31.2		
15	88	.48	469	5.8	1076	10.7	79	16.1		
16	75	1.20	406	15.1	8726	485.8	16	9.1		
17	569	2.82	1533	15.6	28428	447.0	414	69.1		
18	238	1.06	406	3.8	10709	150.0	225	34.5		
19	353	1.63	1381	13.2	26075	385.4	387	61.0		
20	311	1.77	325	3.8	10179	180.1	71	13.7		
21	706	2.64	1883	14.4	34213	406.3	571	71.9		
22	376	1.57	512	4.4	13816	181.1	183	26.0		
23	408	3.27	758	12.5	19701	500.0	225	61.1		
24	655	2.07	1822	11.8	34213	344.1	62	6.5		
25	485	1.46	1223	7.6	14229	133.5	241	24.5		
26	102	.83	344	6.2	9617	261.7	65	19.2		
27	635	2.39	1655	12.8	32523	388.7	503	63.7		
28	353	1.47	594	5.1	13198	172.6	314	44.6		
29	322	2.55	562	9.2	17894	451.7	304	82.3		
30	678	2.18	219	1.4	33579	341.9	560	60.5		
31	612	1.87	691	4.3	15897	151.9	204	21.0		
32	113	.90	313	5.5	9286	245.7	54	15.7		

FIGURE 2.7-6

FIGURE 2.7-7 COMPUTER DATA FLOW



2.7.3 Calculation of Results

Mass Emissions: Results from the various test procedures performed during the program were calculated using well known techniques. The method for obtaining mass emissions, on a grams per mile basis, as specified in the 1972 and 1975 Federal Test Procedures were generally used. Appropriate modifications to the formula were made to calculate mass emissions for steady states, the Federal Short Cycle and the acceleration/deceleration sequence. Additional modifications were made to the procedure to calculate modal mass emission data from the 32 acceleration/deceleration sequence modes. Evaporative emissions were calculated in accordance with SHED procedure, SAE J171. Wherever possible, the results tabulated in Section 3 included the number of data points, effluent means and standard deviation.

Skewness and Kurtosis: A measurement of the symmetry or skewness[1] of the test results was obtained by applying the Pearsonian coefficient of skewness:

$$G_1 = \sqrt{\frac{K_3}{K_2^3}}$$

Where $K_2 = \frac{\sum X^2}{N} - \left(\frac{\sum X}{N}\right)^2$ and $K_3 = \frac{\sum X^3}{N} - 3\left(\frac{\sum X^2}{N} \cdot \frac{\sum X}{N}\right) + 2\left(\frac{\sum X}{N}\right)^3$

The distribution has a tail to the right if $G_1 > 0$, or has a tail to the left if $G_1 < 0$. If $G_1 = 0$, the distribution is symmetrical.

To measure the peakedness, or kurtosis[1] of the test results the "alpha four" formula as defined below was applied:

$$G_2 = \frac{K_4}{K_2^2}$$

Where $K_4 = \frac{\sum X^4}{N} - 4\left(\frac{\sum X}{N} \cdot \frac{\sum X^3}{N}\right) + 6\left(\frac{\sum X}{N} \cdot \frac{\sum X^2}{N}\right) - 3\left(\frac{\sum X}{N}\right)^4$

(1) Freund and Williams "Modern Business Statistics," Prentice-Hall, Inc., Englewood Cliffs, New Jersey (1958), pp. 104-107.

Bennett and Franklin "Statistical Analysis in Chemistry and the Chemical Industry," John Wiley & Sons, Inc., New York (1954), pp. 81-82.

The distribution has the bell shape of the normal distribution when $G_2 = 3$. If G_2 is greater than 3.0 the distribution is peaked in the center. When G_2 is less than 3.0 the distribution is flat in the middle.

Calculation of Acceleration/Deceleration Sequence Results: A comparison of the Acceleration/Deceleration Sequence Bag Results with the Acceleration/Deceleration Sequence Mode Results was desirable as a check on modal mass emissions analyses. The 32 acceleration and deceleration mode emissions values were combined with the five steady state emission values to obtain Acceleration/Deceleration Sequence Calculated Results by the following equation. Results are presented in Section 3.5.3.

$$\text{A/D Calculated} = (.75 \cdot SS_{45} + .25 \cdot SS_{15} + 1.5333 \cdot SS_{idle} + 1.0082 \cdot SS_{30} + 2.0333 \cdot SS_{60} + \sum_{i=1}^{32} dd_i \cdot M_i)/9.7891$$

where: SS = mass effluent values, in grams/vehicle mile, for each steady state test, where the subscripts denote the steady state speed. The factors before each steady state denote the distance traveled at that speed, or time in minutes for idle, in the acceleration/deceleration sequence.

M_i = mass values, in grams/mile, for each acceleration or deceleration mode i.

dd_i = distance traveled, in miles, for each acceleration or deceleration mode i.

9.7891 = the total miles for the acceleration/deceleration sequence. Division by this number transforms the final results to a grams/vehicle mile basis.

Significant Differences in Test Results

The chi-square (χ^2) test of significant difference was used to determine whether or not significant differences existed between various distributions of emission test results. Chi-square values (χ^2_C) were calculated and compared to expected chi-square values (χ^2_E) derived from standard chi-square tables at the 95% level of confidence using the appropriate degrees of freedom. It can be concluded that there is a significant difference between the data distributions being compared if $\chi^2_C > \chi^2_E$. If $\chi^2_C \leq \chi^2_E$, any differences between the data distributions being compared are attributable to chance.

Calculation of Hydrogen-Carbon Ratio for Evaporative Test Results

The weighted average hydrogen-carbon (H/C) atom ratio of the initial boiling point to 130°F vapor fraction of the test fuel was determined by use of a chromatographic technique*. A squalene column was used to produce thirty-three chromatographic peaks. Using data from a paper by Maynard and Sanders, and a known sample of natural gas, the eluted peaks were identified and the mole percents determined. The H/C ratios were calculated from the respective chemical compositions.

The following formula was used to compute the weighted average H/C ratio for each vapor sample.

$$\text{Fuel H/C ratio} = \frac{\sum_{i=1}^{33} (X_i \cdot H/C_i)}{100}$$

where X_i represents the mole percent of each individual fuel component and H/C_i represents the H/C ratio of each individual component.

*J.B. Maynard and W. N. Sanders, "Determination of the Detailed HC Composition and Potential Atmospheric Reactivity of Full-Range Motor Gasolines." Shell Oil Company, Journal of the Air Pollution Control Association, July 1969.

3. RESULTS AND CONCLUSIONS

3.1 FEDERAL TEST PROCEDURE RESULTS BY CITY, MAKE AND MODEL YEAR

This section contains the 1972 and 1975 Federal Test Procedure results for each city, formatted by make and model year. The tables present hydrocarbons, carbon monoxide, carbon dioxide and oxides of nitrogen (corrected) for humidity) in grams per vehicle mile. The make of vehicle is abbreviated along the left hand vertical margin. The letter "N" denotes the number of that vehicle tested for each model year. The abbreviations MW 1 and MW 3 denote the 1972 and 1975 Federal test results respectively. The model year of the test vehicles is delineated across the top heading of the table. Statistical information such as effluent means, range, standard deviation (S.D.), skewness (G1) and kurtosis (G2) are presented by make, by year and for the complete make and model year matrix.

Denver results are clearly different (see Section 3.8) from those of other cities, and therefore have been excluded from a presentation of results for all cities combined. Exhaust emissions results are somewhat different from city-to-city depending upon the particular effluent. Hydrocarbon levels are quite uniform among cities, except for Denver which exhibited significantly higher values. Carbon monoxide and carbon dioxide levels vary somewhat among cities, and indicate richer air-fuel ratios for vehicle operation in Denver. Oxides of nitrogen are lowest for the Denver test vehicle sample, also reflecting rich air-fuel ratios. Washington, D. C. oxides of nitrogen results are significantly higher than the four other cities (excluding Denver), although no specific technical reason for the difference has been developed.

Well defined trends in emission levels by model year exist for all effluents. Hydrocarbons and carbon monoxide exhibit a uniform decrease, while carbon dioxide gradually increases, from the 1962 to 1971 models, reflecting the impact of emission controls. The earlier model year vehicles, from 1957 to 1962, exhibit a relatively constant level in hydrocarbons, carbon monoxide and carbon dioxide. Oxides of nitrogen generally increase from the 1968 models to the 1971 models, which is consistent with the decreasing carbon monoxide and increasing carbon dioxide, reflecting leaner vehicle operation.

Emission levels for all effluents among the makes except for Rambler (American Motors), Volkswagen, Studebaker and miscellaneous cars are relatively uniform. The exceptions exhibit lower effluent levels because of smaller engines and vehicle size.

Also included in this section are the 1972 and 1975 Federal Test Procedure results presented on a logarithm transformed basis. The log transforms of means, standard deviation, skewness and kurtosis for the five cities were calculated and then back-transformed. The use of the log transform has effectively reduced the means, standard deviation, skewness and kurtosis, reflecting the imperfect statistical distribution of test data. Cumulative frequency distributions on a normal and logarithm transform basis are presented in Section 4.6 of the Appendix for the 1972 Federal Test Results by city.

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR FIVE CITIES

HYDROCARBONS IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	5	5	7	6	6	6	6	4	3	3	2	1		1		55					
MW1		4.11	5.04	4.98	7.67	7.80	7.61	10.20	10.43	7.86	7.92	10.99	7.81		53.05		8.23	53.05	2.49	6.99	4.94	32.09
MW3		3.32	4.37	4.31	6.46	6.30	6.60	9.72	9.71	6.98	7.16	10.40	7.31		50.75		7.34	50.75	2.59	6.76	5.00	32.41
CADI	N=	2	2	2	1	2	1	2	2	1	1	1	1	1		1	20					
MW1		2.16	5.26	3.40	5.78	7.63	7.85	4.93	5.21	7.51	8.24	5.48	9.11	5.82		12.42	5.97	12.42	2.15	2.53	0.66	3.45
MW3		1.71	4.51	2.90	5.47	6.34	7.43	4.57	4.98	7.42	7.53	5.67	8.45	5.77		11.30	5.46	11.30	1.68	2.36	0.47	3.27
CHEV	N=	27	19	19	18	16	19	20	19	16	12	6	4	5	6	7	213					
MW1		3.14	4.58	5.76	6.56	9.28	9.79	15.01	7.78	9.01	10.65	5.97	5.70	18.18	7.88	6.95	7.98	62.51	1.06	6.39	4.10	29.85
MW3		2.85	3.95	4.89	5.74	8.35	9.15	13.73	6.93	8.14	9.39	5.36	5.19	16.99	7.27	6.67	7.20	59.80	1.02	6.12	4.19	30.57
CHRY	N=	2	2	4	2	2	3		1	1				1		1	19					
MW1		4.30	4.07	9.67	5.57	7.17	7.40		8.09	9.28				4.55		6.51	6.93	14.37	2.46	3.22	0.67	2.74
MW3		3.68	3.75	7.85	4.81	6.19	6.36		5.77	6.93				4.31		5.39	5.78	11.03	1.94	2.45	0.49	2.60
DODG	N=	4	4	5	6	5	7	4	3	3	2		1	1		2	47					
MW1		3.43	4.01	6.42	5.16	7.38	5.67	9.70	7.77	7.94	6.67		36.58	28.57		7.23	7.42	36.58	2.37	6.23	3.14	13.90
MW3		3.00	3.65	5.15	4.24	6.24	4.45	6.72	6.97	7.06	6.30		35.16	26.94		6.79	6.33	35.16	1.92	5.82	3.62	16.98
FORD	N=	23	17	16	14	14	18	19	12	13	7	5	4	6	4	5	177					
MW1		3.59	3.98	4.80	4.49	7.22	11.21	11.54	9.74	15.94	11.03	6.02	9.97	8.58	6.84	6.28	7.88	72.44	1.28	8.60	4.58	28.67
MW3		3.25	3.51	4.25	3.98	6.61	10.22	10.64	8.80	14.88	10.29	5.58	9.09	8.30	6.17	5.91	7.21	65.92	1.17	7.97	4.46	27.46
IMPE	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=	1	1	1		1	1										5					
MW1		5.41	5.46	5.70		5.04	7.40										5.81	7.40	5.04	0.93	1.26	2.97
MW3		4.36	4.55	4.20		3.82	6.54										4.70	6.54	3.82	1.07	1.26	2.97
MERC	N=	5	3	3	3	3	2	2	2	3	1	2	1				30					
MW1		3.43	4.33	4.56	4.41	8.21	6.73	6.85	11.18	6.04	6.26	2.95	2.25				5.46	12.56	2.25	2.86	1.20	3.46
MW3		3.15	3.87	4.09	4.29	7.67	6.00	6.19	10.51	4.88	5.99	2.68	2.17				4.97	12.84	2.17	2.71	1.53	4.49
OLDS	N=	6	7	5	8	2	6	5	4	3	3	3	1	1	3	1	58					
MW1		2.82	3.48	10.99	5.42	7.51	11.98	8.53	7.72	12.75	6.15	5.52	12.35	4.62	7.26	7.09	7.23	33.74	1.35	5.64	2.73	12.14
MW3		2.54	3.18	9.86	4.63	6.76	10.13	8.19	7.26	12.91	5.78	5.25	10.15	4.46	6.85	6.42	6.58	30.78	1.31	5.01	2.52	11.43
PLYM	N=	5	7	6	7	5	5	6	3	2	1	1	1	1	1		51					
MW1		4.39	4.82	10.30	6.43	7.72	8.82	7.38	5.78	9.07	4.06	4.55	12.83	4.49	17.47		7.23	33.45	2.50	5.25	2.91	13.71
MW3		3.77	4.32	9.17	5.50	6.88	7.82	5.97	4.59	8.29	3.64	4.17	11.94	4.28	14.36		6.29	31.14	2.06	4.79	3.21	15.74
PONT	N=	8	6	8	9	6	7	9	6	3	3	1	1	2	2	1	72					
MW1		4.09	4.02	5.32	11.19	7.11	8.17	12.80	7.69	7.03	5.32	6.77	6.15	8.74	10.82	5.12	7.72	64.68	2.79	10.00	5.20	29.88
MW3		3.66	3.73	4.52	10.66	6.59	7.33	12.22	6.26	6.47	4.88	5.89	5.80	8.72	10.76	4.70	7.11	64.71	2.33	9.78	5.76	30.36
RAMB	N=	5	4	2	3	1	3	2	4	3	2	1			1		31					
MW1		2.32	6.22	4.12	4.60	4.42	5.08	21.54	6.12	6.93	5.19	17.29			6.18		6.47	36.54	1.58	6.62	3.39	15.23
MW3		2.10	5.77	3.64	4.13	4.11	4.48	20.83	5.22	6.30	4.74	14.46			5.94		5.88	35.96	1.50	6.40	3.67	17.18
STUD	N=									1				1			2					
MW1										6.60				5.45			6.03	6.60	5.45	0.82	0.00	1.03
MW3										7.04				4.77			5.91	7.04	4.77	1.61	0.00	1.01
VOLK	N=	4	6	10	6	7	4	5	4	3	3	1	1	2	2	2	60					
MW1		4.44	5.12	4.07	5.63	5.47	8.95	17.05	7.85	8.52	19.43	4.74	2.66	12.75	9.96	7.75	7.77	56.27	1.88	8.04	4.28	24.52
MW3		3.74	4.59	3.90	4.90	5.06	8.18	16.44	7.66	7.76	19.93	4.37	2.62	12.03	9.63	7.47	7.33	54.75	2.03	7.90	4.24	24.00
MISC	N=	4	3	1	1	1	1										11					
MW1		2.38	2.70	4.49	1.94	16.37	7.79										4.39	16.37	1.55	4.34	2.18	6.53
MW3		2.18	2.17	4.53	1.77	15.08	7.65										4.03	15.08	1.38	4.08	2.07	6.09
AV/YR	N=	101	86	89	84	71	83	80	64	55	38	23	16	21	20	20	851					
MW1		3.45	4.41	5.97	6.27	7.72	9.11	12.18	8.14	10.26	9.58	6.49	9.53	11.38	10.74	7.07	7.53					
MW3		3.06	3.90	5.19	5.56	6.89	8.18	11.18	7.28	9.44	8.88	5.94	8.80	10.80	10.04	6.63	6.81					
RANGE																						
MW1 HI		10.13	16.79	33.74	66.68	19.07	46.68	72.44	24.08	57.94	31.96	17.29	36.58	37.85	53.05	12.42		72.44				
MW1 LO		1.06	1.60	1.88	1.94	2.09	2.46	3.32	3.91	4.24	1.35	2.59	2.25	3.89	3.23	3.98			1.06			
MW3 HI		10.27	15.76	31.14	64.71	17.14	40.48	65.92	20.39	54.57	29.77	14.46	35.16	36.51	50.75	11.30		65.92				
MW3 LO		1.02	1.53	1.98	1.75	1.88	1.94	3.41	3.13	3.82	1.31	2.24	2.17	3.48	2.98	3.56			1.02			
S.D./YR																						
MW1		1.38	2.18	4.72	7.15	3.67	6.67	13.29	3.71	8.11	6.88	3.64	8.48	8.70	10.65	2.33				7.09		
MW3		1.26	1.95	4.27	7.12	3.44	6.08	12.63	3.30	7.77	6.84	3.28	8.09	8.26	10.21	2.33				6.73		
SKEWNESS																						
MW1 G1		1.61	3.34	4.66	6.76	1.11	3.35	3.22	1.78	4.23	1.73	1.31	2.27	1.76	3.35	0.59					4.84	
MW1 G2		7.54	18.51	27.30	54.72	3.58	16.91	12.96	7.47	23.88	5.28	4.40	7.67	5.53	13.87	2.56						34.71
MW3 G1		2.19	3.72	5.06	7.09	1.07	3.10	3.19	1.55	4.14	1.75	1.05	2.41	1.44	3.38	0.46					4.94	
MW3 G2		12.31	21.69	30.80	58.51	3.45	14.87	12.61	6.05	22.97	5.16	3.24	8.28	5.96	14.08	2.10						35.18

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR FIVE CITIES

CARBON MONOXIDE IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	5	5	7	6	6	6	6	4	3	3	2	1		1		55					
MW1		82.40	73.16	78.22	135.83	124.58	97.05	125.09	131.62	120.89	94.14	199.16	74.73		79.09		108.08	263.03	24.73	51.95	0.94	3.49
MW3		65.60	54.34	63.91	115.01	105.80	84.91	121.94	121.22	109.91	85.78	182.87	74.39		71.68		94.49	234.20	16.33	49.29	0.91	3.06
CADI	N=	2	2	2	1	2	1	2	2	1	1	1	1	1		1	20					
MW1		40.15	104.24	44.49	130.57	131.77	153.82	88.36	134.48	112.32	226.46	140.21	147.85	23.55		110.39	106.61	226.46	23.31	52.46	0.15	2.80
MW3		33.12	97.75	35.94	125.59	112.33	150.31	72.89	126.09	112.64	207.14	142.29	138.26	23.21		103.17	97.95	207.14	18.70	50.42	0.10	2.43
CHEV	N=	27	19	19	18	16	15	20	19	16	12	6	4	5	6	7	213					
MW1		45.56	58.33	75.74	92.73	111.77	100.66	118.07	84.57	101.44	80.53	73.90	64.56	98.03	93.14	73.96	84.39	312.98	10.72	45.13	1.19	5.74
MW3		39.36	48.69	60.82	80.74	100.83	90.03	106.58	76.20	93.63	75.39	71.87	56.93	93.00	85.11	83.52	75.69	307.04	7.96	44.26	1.31	6.18
CHRY	N=	2	2	4	2	2	3		1	1				1		1	19					
MW1		65.96	52.68	125.74	85.01	89.04	136.44		129.04	192.61				47.87		144.26	105.87	203.58	34.09	55.40	0.48	2.01
MW3		55.60	48.78	104.45	79.31	75.79	108.93		77.41	155.65				46.75		124.63	87.79	169.74	22.73	42.73	0.32	2.23
DODG	N=	4	4	5	6	5	7	4	3	3	2		1	1		1	47					
MW1		62.62	50.43	94.65	81.44	110.31	85.68	132.55	93.31	119.68	84.89		168.58	59.20		80.18	91.33	224.60	28.78	46.61	1.10	3.57
MW3		52.53	46.49	74.87	68.78	88.52	60.79	90.99	86.66	91.00	79.02		169.07	48.88		81.12	74.06	190.57	23.40	38.62	1.02	3.64
FORD	N=	23	17	16	14	14	18	19	12	13	7	5	4	6	4	5	177					
MW1		40.64	52.59	63.89	50.94	93.39	84.04	83.58	85.41	104.73	100.61	80.11	90.11	95.96	91.22	88.18	74.61	218.55	9.70	38.79	0.82	3.69
MW3		33.73	42.12	52.33	43.87	84.40	78.53	76.50	76.22	97.86	85.26	75.90	85.25	92.69	81.21	87.41	66.75	197.05	8.67	37.51	0.80	3.30
IMPE	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=	1	1	1		1	1										5					
MW1		170.53	111.15	61.47		57.80	125.35										105.27	170.53	57.80	47.09	0.26	1.73
MW3		153.81	90.36	41.44		48.20	105.54										87.87	153.81	41.44	45.82	0.38	1.86
MERC	N=	5	3	3	3	3	2	2	2	3	1	2	1				30					
MW1		42.96	63.58	59.83	36.89	108.63	71.23	131.54	175.66	78.80	65.28	35.94	21.71				72.46	266.61	21.71	51.29	1.99	7.91
MW3		35.81	53.06	50.35	32.97	89.93	58.07	116.56	163.14	51.96	59.00	30.94	20.72				61.04	249.85	20.52	44.56	2.46	10.18
OLDS	N=	6	7	5	8	2	6	5	4	3	3	3	1	1	3	1	58					
MW1		37.24	54.27	87.04	77.10	72.16	103.49	99.79	85.09	133.03	63.12	82.04	104.50	42.30	55.83	70.68	77.24	173.82	17.78	37.45	0.59	2.83
MW3		31.27	45.68	78.40	60.20	64.83	85.23	92.08	80.24	128.05	59.90	75.97	98.82	40.98	49.05	59.17	67.96	157.26	11.69	35.48	0.56	2.58
PLYM	N=	5	7	6	7	5	5	6	3	2	1	1	1	1	1		51					
MW1		60.48	58.81	89.46	74.47	97.91	145.81	92.07	66.26	87.11	102.82	34.85	145.50	71.78	56.23		84.86	259.08	24.82	49.26	1.81	6.38
MW3		48.95	54.05	80.54	66.84	89.20	119.63	74.50	52.33	83.68	89.32	27.89	140.20	53.02	51.36		73.56	248.40	23.07	46.97	1.78	6.32
PONT	N=	8	6	8	9	6	7	9	6	3	3	1	1	2	2	1	72					
MW1		55.71	63.52	81.66	92.04	82.64	97.27	64.21	87.06	106.47	78.96	72.34	47.98	106.37	94.61	63.14	79.55	331.51	7.81	44.03	2.73	16.08
MW3		47.89	55.86	66.51	78.09	78.13	87.20	60.80	75.08	102.05	73.03	68.93	45.08	103.02	88.91	61.80	71.05	317.25	6.68	42.08	2.93	17.51
RAMB	N=	5	4	2	3	1	3	2	4	3	2	1			1		31					
MW1		25.52	45.98	60.39	51.07	67.80	114.42	105.28	73.78	121.17	60.60	110.48			71.74		69.98	172.60	15.19	42.94	0.96	2.96
MW3		19.55	48.88	46.92	44.50	62.98	105.40	107.26	67.44	116.54	56.75	102.07			68.54		65.10	169.85	12.41	43.22	0.85	2.67
STUD	N=									1				1			2					
MW1										108.20				94.67			101.44	108.20	94.67	9.57	0.00	1.23
MW3										102.12				86.07			94.10	102.12	86.07	11.35	0.00	1.01
VOLK	N=	4	6	10	6	7	4	5	4	3	3	1	1	2	2	2	60					
MW1		48.00	40.67	46.41	60.63	67.24	77.69	63.90	69.81	69.38	61.96	27.75	58.64	48.17	107.85	49.54	58.93	154.16	16.34	25.04	0.97	5.17
MW3		45.37	35.79	44.67	57.74	62.77	74.26	60.97	67.41	66.26	59.14	25.64	56.82	48.39	105.57	48.11	56.06	151.00	16.31	24.87	1.03	5.20
MISC	N=	4	3	1	1	1	1										11					
MW1		20.16	25.38	47.57	34.22	84.24	46.00										33.53	84.24	12.18	20.40	1.41	4.51
MW3		17.74	18.86	42.79	34.49	81.28	45.80										30.18	81.28	11.45	20.40	1.52	4.56
AV/YR	N=	101	86	89	84	71	83	80	64	55	38	23	16	21	20	20	851					
MW1		47.50	56.55	73.86	78.75	98.21	98.43	97.87	91.00	135.83	85.55	84.61	86.77	81.64	85.16	80.33	81.17					
MW3		40.13	48.16	61.66	68.10	87.25	85.99	87.92	81.74	96.46	77.96	79.70	81.63	77.29	78.17	81.45	71.94					
RANGE																						
MW1 HI		170.53	124.74	203.58	331.51	312.98	259.08	237.84	266.61	218.55	226.46	214.68	168.58	195.99	171.25	146.55		331.51				
MW1 LO		7.81	12.18	19.07	19.25	27.23	28.49	33.79	15.27	36.02	17.78	14.05	21.71	23.55	20.53	29.33			7.81			
MW3 HI		153.81	108.20	187.10	317.25	307.04	206.00	214.78	249.95	197.05	207.14	189.90	163.07	194.34	151.00	147.33		317.25				
MW3 LO		6.68	11.45	14.37	15.79	22.03	22.73	32.22	13.69	30.92	15.12	12.53	20.72	23.21	18.66	29.93			6.68			
S.D./YR																						
MW1		27.19	27.23	36.16	59.31	46.29	43.24	40.71	41.38	41.96	18.77	59.84	44.82	45.04	38.58	33.23				44.93		
MW3		24.48	24.67	31.03	57.72	44.34	39.62	36.76	38.79	38.37	36.56	56.83	43.43	45.87	36.81	30.72				42.74		
SKEWNESS																						
MW1 G1		1.32	0.64	1.35	1.98	1.75	0.81	1.00	1.35	0.84	1.49	0.89	0.37	0.92	0.62	0.40					1.31	
MW1 G2		5.92	2.47	5.28	7.16	8.15	4.07	4.35	6.64	3.39	6.74	2.44	1.99	3.16	2.84	2.46						5.80
MW3 G1		1.39	0.66	1.43	2.11	1.97	0.56	0.95	1.36	0.72	1.26	0.80	0.41	1.00	0.61	0.27					1.35	
MW3 G2		6.22	2.55	5.76	7.52	9.92	2.77	3.95	6.94	3.17	5.98	2.20	2.03	3.18	2.57	2.31						6.12

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR FIVE CITIES

CARBON DIOXIDE IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	5	5	7	6	6	6	6	4	3	3	2	1		1		55					
MW1		775.36	734.20	613.58	581.95	552.19	456.56	470.73	449.94	620.04	466.86	623.77	643.29		737.98		580.02	944.63	219.87	144.49	0.09	2.78
MW3		744.58	705.98	599.92	569.84	531.85	440.32	463.34	434.65	601.92	452.04	603.72	610.99		770.45		563.16	929.56	215.75	141.71	0.08	2.79
CADI	N=	2	2	2	1	2	1	2	2	1	1	1	1	1		1	20					
MW1		882.09	754.79	854.65	796.44	558.16	556.47	676.17	583.29	633.51	491.65	599.56	551.62	587.28		496.98	666.39	926.20	491.65	135.97	0.59	1.96
MW3		860.40	727.63	807.60	735.24	551.33	541.62	656.00	569.14	626.01	491.11	577.05	523.73	580.72		524.11	647.19	912.33	491.11	123.85	0.67	2.21
CHEV	N=	37	19	19	18	16	19	20	19	16	12	6	4	5	6	7	213					
MW1		637.93	586.42	588.78	501.70	507.95	481.77	452.26	456.35	445.72	451.56	484.87	504.02	457.19	470.01	469.18	513.83	1555.26	263.19	137.23	2.41	17.64
MW3		623.19	573.33	572.07	488.59	492.55	473.43	465.64	448.43	420.99	437.38	469.71	490.79	440.10	454.23	453.01	502.14	1830.23	254.83	143.56	3.90	35.76
CHRY	N=	2	2	4	2	2	3		1	1				1		1	19					
MW1		832.49	626.28	682.06	557.59	483.59	439.36		524.74	643.23				690.15		695.87	610.54	963.42	246.62	151.72	-0.05	3.92
MW3		917.93	581.42	677.15	535.39	477.01	437.38		537.37	640.96				661.26		651.43	607.12	1180.59	248.99	183.88	1.27	6.92
DODG	N=	4	4	5	6	5	7	4	1	3	2		1	1		2	47					
MW1		604.85	590.91	545.44	480.59	534.90	522.31	431.86	314.81	464.55	425.86		429.83	484.91		399.36	496.07	802.53	230.89	115.34	0.26	3.32
MW3		590.48	566.75	538.94	475.70	528.52	524.90	424.28	302.80	461.48	416.95		409.26	485.89		396.92	489.53	793.19	241.55	113.70	0.26	3.27
FORD	N=	23	17	16	14	14	18	19	12	13	7	5	4	6	4	5	177					
MW1		529.76	576.16	558.65	562.67	524.48	502.33	442.31	487.33	462.50	467.00	364.92	432.06	448.10	519.68	452.48	503.93	1098.91	238.18	133.83	0.81	4.19
MW3		512.69	561.82	538.19	545.77	516.12	484.89	429.04	479.67	451.73	457.62	328.45	433.73	438.22	501.77	437.62	490.02	1077.11	225.37	129.43	0.81	4.35
IMPE	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=	1	1	1		1	1										5					
MW1		775.82	786.89	573.54		755.15	736.77										725.64	786.89	573.54	87.18	-1.31	3.00
MW3		720.43	758.29	587.84		733.41	703.84										700.77	758.29	587.84	66.19	-1.15	2.76
MERC	N=	5	3	3	3	3	2	2	2	3	1	2	1				30					
MW1		734.11	611.91	641.62	600.87	492.21	578.80	683.71	469.17	455.09	505.72	352.45	320.90				569.02	861.44	320.90	131.57	0.02	2.48
MW3		709.34	593.93	619.70	614.16	479.37	598.75	659.15	451.95	445.06	486.74	339.14	320.31				556.93	842.45	320.31	128.91	-0.06	2.38
OLDS	N=	6	7	5	8	2	6	5	4	3	3	3	1	1	3	1	58					
MW1		759.88	704.99	577.28	639.14	582.81	545.32	488.67	560.20	539.08	428.38	598.60	651.13	429.59	600.65	694.63	601.57	963.65	174.28	136.65	0.11	4.06
MW3		711.76	679.72	550.22	616.32	573.75	521.25	477.41	543.33	516.29	412.89	628.19	624.91	431.28	582.72	670.10	580.90	941.11	163.11	130.95	-0.03	4.18
PLYM	N=	5	7	6	7	5	6	3	2	2	1	1	1	1	1		51					
MW1		567.49	594.97	558.42	533.20	426.82	452.60	493.25	424.83	429.05	427.43	568.70	398.02	490.87	341.98		505.91	739.13	263.11	101.57	-0.03	2.53
MW3		565.46	576.57	540.69	521.10	436.03	449.34	489.57	408.50	420.39	417.62	573.89	378.46	487.33	327.25		497.36	702.39	311.79	92.00	0.02	2.29
PONT	N=	8	6	8	9	6	7	9	6	3	3	1	1	2	2	1	72					
MW1		665.92	631.72	569.74	573.58	579.02	480.55	500.43	549.44	567.14	526.17	381.45	746.05	597.83	391.29	528.43	560.98	783.13	239.90	103.59	-0.47	3.24
MW3		628.88	607.66	558.47	554.28	556.22	493.69	499.97	536.13	544.59	530.12	361.67	690.63	566.67	394.57	508.07	546.53	766.64	231.18	95.60	-0.59	3.57
RAMB	N=	5	4	2	3	1	3	2	4	3	2	1			1		31					
MW1		508.92	477.88	527.87	524.79	501.21	423.23	311.65	388.98	452.99	353.85	366.53			397.12		447.32	718.69	299.36	95.67	0.82	3.35
MW3		510.07	461.74	513.44	508.89	487.22	402.48	327.70	375.37	435.11	340.96	353.85			384.50		436.39	703.16	307.22	90.79	0.89	3.59
STUD	N=									1				1			2					
MW1										417.13				419.50			418.32	419.50	417.13	1.68		
MW3										397.78				402.08			399.94	402.08	397.78	3.05		
VOLK	N=	4	6	10	6	7	4	5	4	3	3	1	1	2	2	2	60					
MW1		318.19	354.07	320.86	309.27	260.45	259.19	787.83	277.34	270.03	185.17	242.93	334.97	193.87	218.75	233.70	285.13	473.88	130.96	66.82	0.31	3.69
MW3		316.54	354.47	312.83	302.38	255.00	266.69	284.42	275.11	269.14	180.79	233.85	329.50	195.05	211.75	238.37	281.89	480.38	123.77	68.04	0.34	3.93
MISC	N=	4	3	1	1	1	1										11					
MW1		361.17	323.10	405.01	396.32	200.79	205.90										329.28	405.01	200.79	74.46	-0.86	2.18
MW3		353.62	311.54	391.84	377.30	192.32	199.05										319.06	391.84	192.32	72.16	-0.92	2.24
AV/YR	N=	101	86	89	84	71	83	80	64	55	38	23	16	21	20	20	851					
MW1		609.57	583.86	556.72	533.71	493.97	479.18	458.58	458.90	469.18	433.99	458.32	488.76	460.01	469.90	461.44	512.34					
MW3		592.96	566.84	541.08	519.55	483.00	471.06	455.93	448.76	453.36	423.43	449.18	474.12	447.71	458.78	449.18	500.03					
RANGE																						
MW1	HI	1595.26	1098.91	894.14	861.24	910.01	755.77	727.39	693.61	765.53	787.30	825.73	746.05	690.15	737.98	695.87		1555.26				
MW1	LO	273.06	251.62	260.36	254.72	176.54	205.90	227.89	219.87	234.92	130.96	242.93	320.90	139.66	202.88	165.08			130.96			
MW3	HI	1830.23	1077.11	831.65	803.93	835.50	760.10	747.66	673.28	690.99	732.52	802.63	690.63	681.26	770.45	670.10		1830.23				
MW3	LO	264.81	243.48	262.71	246.23	169.21	199.05	225.37	215.75	232.21	123.77	233.85	320.31	144.70	196.21	162.35			123.77			
S.D./YR																						
MW1		204.70	148.62	130.61	120.80	139.90	111.32	115.30	109.09	113.02	129.46	141.58	126.00	123.93	137.07	128.11				148.01		
MW3		216.71	143.91	123.41	116.62	133.08	109.43	115.73	106.74	105.92	124.80	149.86	111.76	114.99	138.28	119.34				145.88		
SKEWNESS																						
MW1	G1	0.77	0.30	-0.25	0.31	0.09	-0.02	0.22	-0.23	0.29	-0.15	0.76	0.40	-0.62	-0.01	-0.36					0.69	
MW1	G2	5.90	3.85	2.94	3.17	3.34	3.23	2.68	2.72	2.69	3.70	3.03	2.23	3.74	2.66	3.58					1.15	5.78
MW3	G1	1.83	0.33	-0.38	-0.06	-0.01	0.02	0.24	-0.26	0.18	-0.32	0.78	0.28	-0.69	0.20	-0.43						
MW3	G2	12.06	4.03	2.90	3.04	3.09	3.11	2.66	2.69	2.31	3.45	2.75	2.14	3.96	3.06	3.62						11.13

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR FIVE CITIES

CORRECTED OXIDES OF NITROGEN IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	5	5	7	6	6	6	6	4	3	3	2	1		1		55					
MW1		3.87	5.64	5.88	3.56	2.90	3.93	3.10	2.66	4.99	3.08	1.07	5.41		6.05		3.97	8.45	0.46	2.03	0.59	2.49
MW3		4.02	5.93	6.08	3.73	2.77	4.00	3.00	2.53	5.06	2.85	1.08	5.10		6.13		4.01	9.38	0.48	2.11	0.78	2.99
CADI	N=	2	2	2	1	2	1	2	2	1	1	1	1	1		1	20					
MW1		5.35	5.77	8.75	5.13	2.97	3.89	5.06	1.68	1.59	1.63	2.62	1.99	6.28		4.21	4.33	9.77	1.00	2.55	0.54	2.17
MW3		5.65	5.67	8.29	4.17	3.08	3.74	5.46	1.65	1.38	1.72	2.36	1.80	7.64		4.42	4.35	9.38	0.99	2.65	0.53	1.94
CHEV	N=	27	19	19	18	16	19	20	19	16	12	6	4	5	6	7	213					
MW1		4.34	5.11	5.38	3.31	3.34	3.43	2.74	3.64	3.87	3.82	3.97	3.61	3.56	3.05	3.11	3.87	10.59	0.66	1.77	0.70	3.37
MW3		4.29	5.27	5.43	3.37	3.44	3.53	2.82	3.69	3.77	3.72	3.86	3.67	3.41	3.03	3.00	3.89	10.62	0.64	1.77	0.62	3.25
CHRY	N=	2	2	4	2	2	3		1	1				1		1	19					
MW1		5.23	6.12	5.17	4.50	3.52	1.60		6.11	1.06				8.88		2.49	4.36	8.88	1.06	2.20	0.23	2.29
MW3		5.00	6.23	5.58	4.37	3.77	1.98		7.91	1.13				8.81		2.65	4.61	8.81	1.13	2.23	0.20	2.23
DODG	N=	4	4	5	6	5	7	4	3	3	2		1	1		2	47					
MW1		4.88	4.55	4.94	4.39	3.40	4.83	3.33	1.83	2.48	2.82		1.55	6.67		4.77	4.03	9.94	0.60	2.31	0.67	2.85
MW3		4.91	4.58	5.40	4.75	3.62	5.47	3.65	1.97	2.85	2.80		1.42	7.19		4.78	4.32	10.40	0.67	2.36	0.65	3.06
FORD	N=	23	17	16	14	14	18	19	12	13	7	5	4	6	4	5	177					
MW1		5.53	5.46	5.97	5.10	2.87	3.77	3.42	4.15	3.80	2.51	2.27	4.36	4.09	3.72	4.56	4.34	9.50	0.43	2.02	0.47	2.69
MW3		5.57	5.54	6.21	5.27	2.91	3.77	3.42	4.23	3.88	2.80	2.10	4.35	4.00	3.72	4.32	4.40	9.52	0.41	2.05	0.41	2.54
IMPE	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=	1	1	1		1	1										5					
MW1		3.12	6.79	5.61		6.00	4.27										5.12	6.79	3.12	1.45	-0.29	1.78
MW3		2.92	7.46	5.56		6.25	4.29										5.30	7.46	2.92	1.76	-0.17	1.84
MERC	N=	5	3	3	3	3	2	2	2	3	1	2	1				30					
MW1		5.72	4.57	5.78	7.21	3.44	2.83	2.77	2.46	4.07	3.97	2.47	6.31				4.51	8.99	0.66	2.02	0.51	2.67
MW3		6.07	4.95	5.94	7.28	3.51	3.23	2.88	2.46	4.71	3.85	2.45	7.65				4.77	8.81	0.67	2.04	0.28	2.47
OLDS	N=	6	7	5	5	2	6	5	4	3	3	3	1	1	3	1	58					
MW1		5.00	3.68	5.27	3.94	4.49	3.38	2.80	5.58	4.14	3.43	2.50	5.10	4.15	6.91	5.98	4.24	9.75	0.87	1.71	0.44	3.50
MW3		4.96	3.80	5.27	4.04	4.52	3.57	2.90	5.58	4.00	3.38	2.46	5.20	4.09	6.52	5.99	4.26	8.66	0.82	1.63	0.15	2.81
PLYM	N=	5	7	6	7	5	5	6	3	2	1	1	1	1	1		91					
MW1		5.86	5.74	6.04	5.13	3.43	2.53	4.08	4.25	3.89	3.52	11.14	0.86	7.12	2.85		4.75	11.14	0.31	2.35	0.58	3.26
MW3		5.97	5.73	6.39	5.34	3.74	2.97	4.44	4.50	3.81	3.75	11.59	0.78	8.18	2.81		4.99	11.59	0.53	2.40	0.58	3.14
PONT	N=	8	6	8	9	6	7	9	6	3	3	1	1	2	2	1	72					
MW1		4.49	3.82	4.77	3.68	4.56	3.45	4.22	3.86	4.41	5.01	2.09	7.79	4.49	2.82	2.78	4.15	8.74	0.95	1.69	0.52	2.61
MW3		4.80	4.23	4.97	3.95	4.47	3.52	4.26	3.78	4.19	4.97	2.12	6.84	4.23	2.78	2.82	4.24	8.80	0.83	1.72	0.40	2.58
RAMB	N=	5	4	2	3	1	3	2	4	3	2	1			1		31					
MW1		3.43	5.13	3.54	6.08	4.84	2.29	1.22	3.41	2.89	4.59	3.49			3.48		3.73	7.54	0.55	1.61	0.57	3.28
MW3		3.56	5.08	3.51	6.46	4.80	2.12	1.39	3.34	2.62	4.41	3.77			3.32		3.79	7.22	0.49	1.67	0.49	2.75
STUD	N=									1				1			2					
MW1										2.26				6.35			4.31	6.35	2.26	2.90	0.01	1.01
MW3										2.09				5.79			3.94	5.79	2.09	2.62	0.01	1.00
VOLK	N=	4	6	10	6	7	4	5	4	3	3	1	1	2	2	2	60					
MW1		2.32	3.23	3.29	2.46	2.21	1.86	3.17	2.39	2.22	1.61	2.68	2.16	1.62	1.02	4.15	2.58	7.93	0.46	1.31	1.81	7.98
MW3		2.28	3.14	3.10	2.30	2.03	1.75	3.31	2.36	2.26	1.57	2.51	2.12	1.56	0.96	4.31	2.50	7.86	0.42	1.35	2.02	8.59
MISC	N=	4	3	1	1	1	1										11					
MW1		5.41	4.87	8.05	6.01	1.04	1.64										4.82	8.05	1.04	2.26	-0.28	2.04
MW3		5.67	4.89	8.25	5.92	0.96	1.54										4.92	8.25	0.96	2.41	-0.25	1.94
AV/YR	N=	101	86	89	84	71	83	80	64	55	38	23	16	21	20	20	851					
MW1		4.75	4.93	5.32	4.22	3.28	3.40	3.28	3.61	3.63	3.34	3.12	3.95	4.48	3.70	3.90	4.05					
MW3		4.81	5.06	5.46	4.34	3.32	3.54	3.37	3.67	3.64	3.33	3.07	3.94	4.55	3.62	3.84	4.12					
RANGE																						
MW1 HI		8.99	9.31	10.03	9.43	6.79	9.94	8.99	8.24	10.59	6.96	11.14	8.13	8.88	9.75	8.94		11.14				
MW1 LO		1.45	1.82	1.76	0.46	0.43	0.31	0.55	0.66	0.66	0.54	0.48	0.86	0.77	0.46	0.60			0.31			
MW3 HI		8.88	9.46	10.23	8.99	6.89	10.40	9.11	8.38	10.62	6.93	11.59	8.05	8.81	8.66	8.88		11.59				
MW3 LO		1.46	2.09	1.66	0.48	0.41	0.53	0.49	0.67	0.64	0.48	0.43	0.78	0.69	0.42	0.67			0.41			
S.D./YR																						
MW1		1.74	1.65	2.07	1.89	1.45	1.66	1.67	1.71	2.16	1.58	2.26	2.18	2.40	2.45	2.16				1.96		
MW3		1.78	1.67	2.02	1.93	1.47	1.77	1.67	1.77	2.15	1.58	2.35	2.48	2.55	2.32	2.19				2.01		
SKEWNESS																						
MW1 G1		0.38	0.46	0.39	0.44	0.33	1.17	1.05	0.61	1.22	0.17	2.09	0.49	-0.00	0.87	0.49					0.64	
MW1 G2		2.50	2.49	2.36	2.81	2.48	5.36	4.08	2.79	4.28	2.53	8.16	1.85	1.77	3.06	2.80						3.07
MW3 G1		0.41	0.52	0.36	0.28	0.41	1.12	0.97	0.77	1.18	0.38	2.22	0.45	0.07	0.70	0.56					0.62	
MW3 G2		2.54	2.69	2.45	2.44	2.50	5.02	4.15	3.11	4.16	2.52	8.73	1.69	1.70	2.43	2.78						3.01

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR LOS ANGELES

HYDROCARBONS IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1	1	1	1	1	1	1	1	1	1					11					
MW1		4.10	6.57	5.19	5.91	7.30	5.84	6.66	10.05	10.31	6.13	12.07					7.29	12.07	4.10	2.47	0.77	2.41
MW3		3.47	5.30	3.99	5.42	4.36	5.03	5.76	8.89	8.84	4.97	11.71					6.16	11.71	3.47	2.55	1.10	3.01
CADI	N=		1	1						1			1			1	5					
MW1			5.86	4.13						7.51			9.11			12.42	7.81	12.42	4.13	3.18	0.38	2.01
MW3			4.87	3.22						7.42			8.45			11.30	7.06	11.30	3.22	3.15	0.12	1.82
CHEV	N=	5	4	4	3	4	4	4	4	3	3	1	1	1	2	1	44					
MW1		3.92	4.35	6.08	6.91	3.83	7.49	24.95	6.76	9.85	13.44	8.11	5.53	19.15	12.07	9.75	8.89	62.51	2.09	9.36	4.52	26.12
MW3		3.29	3.70	4.71	5.55	3.11	6.19	23.55	5.90	7.91	12.75	6.79	5.19	18.64	11.07	10.39	7.89	59.80	1.88	9.03	4.54	26.21
CHRY	N=	1		1		1	1										4					
MW1		2.91		6.81		5.31	2.46										4.38	6.81	2.46	2.06	0.24	1.36
MW3		2.18		5.63		4.76	1.94										3.63	5.63	1.94	1.85	0.10	1.16
DODG	N=	1		1	1	1	1	1								1	7					
MW1		3.34		4.72	2.93	4.81	7.03	8.46								10.46	5.97	10.46	2.93	2.79	0.49	1.89
MW3		2.96		3.67	2.37	4.07	5.28	6.74								9.71	4.98	9.71	2.37	2.55	0.91	2.67
FORD	N=	5	5	3	2	3	5	4	2	2	1	1	1	1	2	2	39					
MW1		3.06	4.10	6.21	4.62	5.77	14.27	11.44	12.33	35.36	5.96	8.46	6.47	10.05	7.75	7.87	9.14	57.94	2.38	10.28	3.36	15.20
MW3		2.81	3.36	5.43	4.21	4.83	13.58	10.47	12.07	32.85	5.92	8.62	6.21	9.36	7.32	7.43	8.46	54.57	2.15	9.78	3.32	14.88
IMPE	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=					1											1					
MW1						5.04											5.04	5.04	5.04	0.0	0.0	0.0
MW3						3.82											3.82	3.82	3.82	0.0	0.0	0.0
MERC	N=	1		1		1	1	1		1							6					
MW1		2.35		4.83		12.56	2.75	9.23		4.90							6.19	12.56	2.75	3.91	0.76	2.07
MW3		2.60		4.46		12.84	2.71	8.44		4.23							5.89	12.84	2.60	4.02	0.95	2.43
OLDS	N=	1	1		2			1	1	1	1	1			2	1	12					
MW1		2.34	3.39		6.15			7.68	7.26	11.30	1.35	9.89			7.87	7.09	6.53	11.30	1.35	3.03	-0.22	2.22
MW3		2.00	3.46		4.44			7.03	7.03	11.17	1.31	9.87			7.57	6.42	6.03	11.17	1.31	3.10	0.12	2.03
PLYM	N=	1	1	1	2	1	1	1							1		9					
MW1		3.27	5.21	6.83	3.70	7.42	6.25	11.25							17.47		7.24	17.47	2.81	4.60	1.32	3.79
MW3		2.79	4.31	5.84	2.96	5.98	4.97	9.18							14.36		5.93	14.36	2.18	3.78	1.32	3.81
PONT	N=	1	1	1	1	2	1	1	2			1		2	1	1	15					
MW1		5.03	5.91	8.03	4.27	4.80	5.75	6.87	10.68			6.77		8.74	13.04	5.32	7.30	13.04	4.07	2.88	0.98	2.74
MW3		4.43	5.30	6.54	3.77	4.34	5.72	6.52	7.97			5.89		8.72	13.27	4.70	6.55	13.27	3.61	2.72	1.34	3.94
RAMB	N=	1		1	1			1	1	1							6					
MW1		3.07		4.51	5.25			36.54	5.86	7.59							10.47	36.54	3.07	12.87	1.74	4.11
MW3		2.63		3.81	4.82			35.96	4.59	6.71							9.76	35.96	2.63	12.91	1.75	4.13
STUD	N=									1							1					
MW1										6.60							6.60	6.60	6.60	0.0	0.0	0.0
MW3										7.04							7.04	7.04	7.04	0.0	0.0	0.0
VOLK	N=	2	2	2	2	1	1	1	1				1				13					
MW1		4.48	9.33	5.85	8.39	4.67	8.16	56.27	11.86				2.66				10.75	56.27	2.66	14.15	2.86	9.73
MW3		3.56	8.16	5.64	7.21	4.15	7.10	54.75	11.73				2.52				9.97	54.75	2.40	13.83	2.90	9.97
MISC	N=	1				1											2					
MW1		2.89				16.37											9.63	16.37	2.89	9.56	0.31	1.00
MW3		2.74				15.08											8.92	15.08	2.74	8.73	0.31	1.00
AV/YR	N=	21	16	17	15	17	16	16	12	11	6	5	4	4	4	7	175					
MW1		3.51	5.22	5.87	5.66	6.22	8.73	18.04	9.01	13.50	8.97	9.14	6.00	11.67	10.74	8.69	8.28					
MW3		3.03	4.45	4.92	4.71	5.34	7.84	16.93	8.00	12.26	8.40	8.59	5.67	11.37	9.95	8.22	7.46					
RANGE																						
MW1 HI		5.90	14.53	8.23	11.23	16.37	36.18	62.51	14.10	57.96	21.00	12.07	9.11	19.15	17.47	12.42		62.51				
MW1 LO		2.34	2.70	4.13	2.81	2.09	2.46	4.76	5.01	4.24	1.35	6.77	2.66	9.55	6.11	5.32			1.35			
MW3 HI		4.73	12.71	6.54	8.49	15.08	34.28	59.85	12.98	54.57	19.69	11.71	8.45	18.64	15.12	11.30		59.80				
MW3 LO		2.00	2.26	3.22	2.19	1.88	1.94	4.22	4.57	3.88	1.31	5.89	2.67	6.23	5.46	4.70			1.31			
S.D./YR																						
MW1		1.10	2.79	1.21	2.22	3.53	8.65	17.31	2.97	15.16	6.67	2.30	2.68	5.34	4.32	2.50				8.33		
MW3		0.80	2.39	1.08	1.87	3.52	8.35	17.47	2.82	14.28	6.30	2.45	2.52	5.34	3.87	2.43				8.05		
SKEWNESS																						
MW1 G1		0.96	2.49	0.53	1.05	1.72	2.43	1.72	0.23	2.58	0.74	[illegible]	-0.12	0.72	0.50	0.28					4.41	
MW1 G2		2.81	9.31	2.30	3.74	5.68	7.77	4.65	1.96	6.19	2.99	2.11	1.83	2.11	1.78	1.83						25.79
MW3 G1		0.75	2.74	0.12	0.62	1.36	2.44	1.59	[illegible]	[illegible]	[illegible]	[illegible]	-0.11	0.59	0.19	-0.14					4.44	
MW3 G2		2.44	10.33	1.67	2.53	5.42	7.77	4.32	2.07	3.52	2.21	1.69	1.45	2.20	1.68	1.64						25.87

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR LOS ANGELES

CARBON MONOXIDE IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1	1	1	1	1	1	1	1	1	1					11					
MW1		98.00	92.44	103.84	55.12	114.13	75.70	100.63	183.36	213.87	72.90	214.68					120.43	214.68	55.12	56.65	0.80	2.13
MW3		83.89	71.14	74.04	47.46	73.20	64.36	82.42	162.14	196.07	60.30	189.90					100.45	196.07	47.46	54.38	0.98	2.22
CADI	N=		1	1						1			1			1	5					
MW1			96.54	65.68						112.32			147.85			110.39	106.56	147.85	65.68	29.69	0.02	2.31
MW3			91.98	48.19						112.64			138.26			103.17	98.85	138.26	48.19	33.08	-0.51	2.37
CHEV	N=	5	4	4	3	6	4	6	6	5	3	1	1	1	2	1	44					
MW1		62.33	49.71	86.80	121.49	57.47	87.82	127.88	80.86	85.18	81.61	104.84	67.02	75.14	146.32	56.14	84.70	171.25	35.59	36.50	0.81	2.79
MW3		45.93	39.81	60.59	99.62	41.05	70.43	110.02	71.29	73.72	78.39	100.12	61.32	66.48	127.45	51.90	70.26	142.90	22.03	35.59	0.88	2.99
CHRY	N=	1		1		1	1										4					
MW1		48.42		114.87		74.54	34.09										67.98	114.87	34.09	35.47	0.50	1.78
MW3		34.81		90.52		69.89	22.73										54.49	90.52	22.73	31.26	0.14	1.36
DODG	N=	1		1	1	1	1	1								1	7					
MW1		86.49		62.91	38.39	69.85	104.38	123.10								108.10	94.75	123.10	38.39	29.59	-0.25	1.91
MW3		77.61		45.67	29.43	48.36	61.28	86.04								113.07	65.93	113.07	29.43	28.39	0.41	2.15
FORD	N=	5	5	3	2	3	5	4	2	2	1	1	1	1	2	2	39					
MW1		41.85	57.58	91.65	51.81	101.56	84.25	94.61	119.25	183.35	132.89	134.17	134.93	136.35	101.25	96.93	91.54	218.55	28.89	48.76	0.72	2.75
MW3		35.11	43.08	76.09	42.63	88.24	78.44	87.38	101.55	174.29	101.32	166.32	129.80	137.27	96.61	98.09	81.77	197.05	17.19	47.23	0.66	2.45
IMPE	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=					1											1					
MW1						57.80											57.80	57.80	57.80	0.0	0.0	0.0
MW3						48.20											48.20	48.20	48.20	0.0	0.0	0.0
MERC	N=	1		1		1	1	1		1							6					
MW1		31.65		69.39		135.11	36.69	158.84		36.02							77.96	158.84	31.65	55.66	0.61	1.61
MW3		20.52		60.81		126.71	31.65	135.86		30.02							67.60	135.86	20.52	51.23	0.93	1.49
OLDS	N=	1	1		2			1	1	1	1	1			2	1	12					
MW1		43.69	59.79		112.06			95.94	71.03	173.82	17.78	131.54			62.62	70.68	84.47	173.82	17.78	42.79	0.56	2.79
MW3		36.54	53.15		72.67			88.13	67.93	157.26	15.12	128.98			55.36	59.17	71.86	157.26	15.12	39.26	0.89	3.20
PLYM	N=	1	1	1	2	1	1	1							1		9					
MW1		60.52	76.76	73.45	44.28	131.97	66.97	142.83							56.23		77.48	142.83	38.03	36.04	0.98	2.53
MW3		51.06	60.78	64.15	29.06	109.69	44.09	118.10							51.36		61.93	118.10	23.07	32.07	0.81	2.41
PONT	N=	1	1	1	1	2	1	1	2			1		2	1	1	15					
MW1		81.23	124.74	150.82	69.99	62.85	93.56	72.18	106.02			72.34		106.37	104.35	63.14	92.19	150.82	61.17	31.58	0.80	2.19
MW3		71.90	108.20	114.61	57.37	52.61	83.21	64.87	83.05			68.93		103.02	93.76	61.80	80.10	145.88	52.36	26.44	1.12	3.54
RAMB	N=	1		1	1			1	1	1							6					
MW1		26.22		79.60	58.12			172.60	50.87	113.79							83.54	172.60	26.22	52.66	0.75	2.38
MW3		18.18		55.66	51.38			169.85	37.53	112.25							74.15	169.85	18.18	56.48	0.86	2.32
STUD	N=									1							1					
MW1										108.20							108.20	108.20	108.20	0.0	0.0	0.0
MW3										102.12							102.12	102.12	102.12	0.0	0.0	0.0
VOLK	N=	2	2	2	2	1	1	1	1				1				13					
MW1		35.99	32.20	72.76	83.78	56.50	65.98	69.89	80.54				58.64				60.98	115.57	16.34	26.28	0.33	3.05
MW3		33.99	26.70	71.77	81.66	50.55	61.40	66.33	80.05				56.92				57.19	113.32	16.31	26.85	0.42	2.87
MISC	N=	1				1											2					
MW1		20.84				84.24											52.54	84.24	20.84	44.84	0.01	1.00
MW3		20.43				81.28											50.86	81.28	20.43	43.04	0.01	1.00
AV/YR	N=	21	16	17	15	17	16	16	12	11	6	5	4	4	3	2	175					
MW1		51.91	62.59	87.08	78.00	81.44	78.12	114.13	96.65	125.48	78.07	141.52	102.11	136.30	97.62	86.05	86.48					
MW3		42.27	50.83	69.70	62.46	67.18	65.17	100.08	83.51	116.38	68.51	131.25	96.55	102.45	88.00	83.60	74.44					
RANGE																						
MW1 HI		98.00	124.74	150.82	169.76	180.91	161.32	172.60	183.36	218.55	132.89	214.68	147.85	148.95	171.25	110.39		218.55				
MW1 LO		16.34	23.47	55.22	38.03	35.59	34.09	65.87	39.25	36.02	17.78	72.34	58.64	63.78	54.17	56.14			16.34			
MW3 HI		83.89	108.20	114.61	162.90	169.73	150.07	169.85	162.14	197.05	101.32	189.90	138.26	145.88	147.70	113.07		197.05				
MW3 LO		16.31	17.19	31.30	23.07	22.03	22.73	61.73	37.53	30.02	15.12	68.93	56.82	60.17	46.75	51.80			15.12			
S.D./YR																						
MW1		22.56	23.45	25.37	39.77	38.02	38.29	31.96	44.84	60.01	37.35	37.69	45.40	42.83	42.91	22.76				42.17		
MW3		19.92	26.41	27.88	37.01	37.00	36.59	31.01	35.90	56.01	30.34	39.18	43.46	45.33	39.84	25.03				40.08		
SKEWNESS																						
MW1 G1		0.31	0.54	0.85	0.95	1.27	1.01	0.13	0.77	0.19	-0.22	0.13	0.03	0.01	0.52	-0.24					0.87	
MW1 G2		2.22	2.23	3.32	2.83	3.89	3.32	2.10	2.55	2.03	2.75	1.58	1.08	1.11	1.94	1.39						3.42
MW3 G1		0.56	0.73	0.45	1.46	1.52	1.16	0.68	0.85	-0.00	-0.73	-0.04	0.02	0.31	0.43	-0.23					0.94	
MW3 G2		2.36	2.59	2.33	4.42	4.71	3.86	2.68	3.20	1.97	2.66	1.59	1.04	1.26	1.63	1.23						3.40

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR LOS ANGELES

CARBON DIOXIDE IN GRAMS PER MILE

	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC N=	1	1	1	1	1	1	1	1	1	1	1					11					
MW1	818.26	759.03	643.83	667.17	716.98	525.39	464.31	612.89	599.16	449.43	663.84					630.94	818.26	449.43	116.84	-0.15	2.10
MW3	796.96	745.45	634.74	645.62	740.58	504.99	454.27	585.40	580.19	440.83	646.38					615.95	796.96	440.88	117.71	-0.06	1.94
CADI N=		1	1						1			1			1	5					
MW1		814.73	894.14						633.51			551.62			496.98	678.20	894.14	496.98	170.39	0.26	1.43
MW3		802.62	831.65						626.01			523.73			524.11	661.59	831.65	523.73	148.27	0.22	1.26
CHEV N=	5	4	4	3	4	4	4	4	3	3	1	1	1	2	1	44					
MW1	587.34	602.69	624.74	499.22	693.25	576.61	522.19	427.40	383.72	498.30	571.14	609.46	613.26	600.42	554.30	536.75	910.01	273.06	124.46	0.38	3.40
MW3	570.83	591.39	599.96	483.02	660.06	560.62	540.98	419.05	368.12	473.06	552.47	610.95	623.18	597.05	529.62	523.30	835.50	264.81	116.53	0.08	2.85
CHRY N=	1		1		1	1										4					
MW1	963.42		737.09		467.05	246.62										603.55	963.42	246.62	312.72	0.02	1.57
MW3	1180.59		712.01		453.66	248.59										648.72	1180.59	248.59	402.10	0.47	1.83
DODG N=	1		1	1	1	1	1								1	7					
MW1	802.53		461.39	460.81	668.49	608.23	421.22								230.89	521.94	802.53	230.89	187.05	-0.00	2.23
MW3	793.19		463.20	450.78	643.50	628.04	426.70								241.55	521.00	793.19	241.55	180.65	0.01	2.21
FORD N=	5	5	1	2	3	5	4	2	2	1	1	1	1	2	2	39					
MW1	436.59	575.13	579.46	516.65	512.37	622.92	509.79	469.96	444.85	371.90	433.98	554.17	465.14	452.39	442.34	511.94	838.35	311.44	121.05	0.74	3.26
MW3	426.33	561.54	555.52	496.75	501.34	611.19	494.66	464.45	431.30	376.05	398.33	535.10	446.27	434.51	426.33	497.62	819.16	306.66	119.44	0.78	3.28
IMPE N=																0					
MW1																0.0	0.0	0.0	0.0	0.0	0.0
MW3																0.0	0.0	0.0	0.0	0.0	0.0
LINC N=					1											1					
MW1					755.15											755.15	755.15	755.15	0.0	0.0	0.0
MW3					733.41											733.41	733.41	733.41	0.0	0.0	0.0
MERC N=	1		1		1	1	1		1							6					
MW1	663.82		628.51		470.27	599.36	644.78		442.06							574.81	663.82	442.06	94.72	-0.58	1.57
MW3	651.77		604.29		459.56	636.83	626.01		409.59							564.68	651.77	409.59	103.18	-0.70	1.70
OLDS N=	1	1		2			1	1	1	1	1			2	1	12					
MW1	872.48	668.76		566.80			495.84	616.89	514.84	174.28	363.17			575.70	694.63	557.16	872.48	174.28	176.63	-0.46	3.42
MW3	847.72	644.88		561.85			498.28	600.15	494.94	163.11	344.83			551.88	670.10	540.79	847.72	163.11	172.38	-0.52	3.51
PLYM N=	1	1	1	2	1	1	1							1		9					
MW1	606.11	671.35	656.70	557.15	540.96	608.65	480.47							341.98		557.84	671.35	341.98	100.83	-1.01	3.38
MW3	578.12	660.69	588.60	549.76	538.25	578.30	481.38							327.25		539.12	660.69	327.25	93.54	-1.23	4.15
PONT N=	1	1	1	1	2	1	1	2			1		2	1	1	15					
MW1	676.79	616.60	599.96	556.23	620.22	411.72	569.69	630.23			381.45		597.83	384.08	528.43	561.43	676.79	381.45	96.00	-0.92	2.62
MW3	665.91	601.47	651.25	525.27	598.55	582.22	541.90	599.12			361.67		566.67	374.41	508.07	556.06	665.91	361.67	88.65	-1.09	3.50
RAMB N=	1		1	1			1	1	1							6					
MW1	718.69		557.36	481.28			323.94	453.23	394.70							488.21	718.69	323.94	137.77	0.62	2.44
MW3	703.16		533.94	463.43			307.22	436.24	378.90							470.49	703.16	307.22	137.43	0.65	2.51
STUD N=									1							1					
MW1									417.13							417.13	417.13	417.13	0.0	0.0	0.0
MW3									397.78							397.78	397.78	397.78	0.0	0.0	0.0
VOLK N=	2	2	2	2	1	1	1	1				1				13					
MW1	337.98	352.36	291.25	296.66	276.85	290.89	286.40	241.43				334.97				306.39	391.87	241.43	42.83	0.54	2.65
MW3	336.92	346.28	283.29	285.70	271.74	289.76	282.40	235.54				329.50				301.03	384.27	233.54	42.77	0.44	2.59
MISC N=	1				1											2					
MW1	378.96				200.79											289.88	378.96	200.79	126.00	0.00	1.01
MW3	367.72				192.32											280.03	367.72	192.32	124.03	0.00	1.00
AV/YR N=	21	16	17	15	17	16	16	12	11	6	5	4	4	8	7	175					
MW1	585.56	595.10	589.17	503.58	567.48	544.52	488.40	486.20	458.39	415.03	482.72	467.56	518.52	447.89	484.28	526.99					
MW3	583.09	582.55	567.81	488.15	551.44	547.95	494.92	471.73	441.31	399.87	460.74	449.82	500.70	433.57	475.16	515.75					
RANGE																					
MW1 HI	963.42	814.73	894.14	667.17	910.01	755.77	692.43	651.87	633.51	540.73	663.84	554.17	610.97	663.27	694.63		963.42				
MW1 LO	273.36	312.85	284.86	294.72	202.79	246.62	286.40	241.43	352.33	174.28	363.17	334.97	413.26	341.98	230.89			174.28			
MW3 HI	1180.59	802.62	831.65	649.62	835.50	780.10	674.28	628.38	626.01	510.89	646.38	535.10	573.91	633.76	670.10		1180.59				
MW3 LO	264.31	308.29	278.75	246.23	192.32	248.59	282.40	235.54	348.59	163.11	344.83	329.50	423.18	327.25	241.55			163.11			
S.D./YR																					
MW1	220.39	135.19	146.76	113.24	173.64	138.44	104.55	118.23	90.43	130.14	129.05	104.67	74.62	102.90	141.50				148.72		
MW3	242.24	117.71	134.85	106.55	164.72	132.52	107.85	111.30	91.73	124.08	132.31	97.85	77.41	97.52	132.12				149.00		
SKEWNESS																					
MW1 G1	-0.05	-0.40	-0.41	-0.75	-0.31	-0.70	-0.00	-0.31	0.89	-1.14	0.49	-0.22	-0.19	1.06	-0.43					0.17	
MW1 G2	1.63	2.64	3.53	3.23	3.07	3.28	2.89	2.66	2.52	3.65	1.60	1.40	1.26	3.52	2.44						2.92
MW3 G1	0.44	-0.42	-0.64	-0.96	-0.50	-0.87	-0.13	-0.41	1.00	-1.41	0.54	-0.31	0.01	0.98	-0.42					0.44	
MW3 G2	2.87	2.58	3.75	3.19	2.94	3.52	2.52	2.85	2.61	4.37	1.59	1.63	1.14	3.38	2.45						4.37

SUMMARY OF EXHAUST EMISSION VALUES FOR LOS ANGELES

CORRECTED OXIDES OF NITROGEN IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1	1	1	1	1	1	1	1	1	1					11					
	MW1	3.21	4.90	3.56	6.10	2.76	3.15	2.76	1.82	1.65	3.55	1.18					3.15	6.10	1.18	1.43	0.65	2.90
	MW3	3.09	5.19	3.86	6.11	3.34	3.15	2.99	1.65	1.89	3.62	1.27					3.29	6.11	1.27	1.45	0.50	2.63
CADI	N=		1	1						1			1			1	5					
	MW1		6.23	7.73						1.59			1.99			4.21	4.36	7.73	1.59	2.66	0.17	1.47
	MW3		6.51	7.19						1.38			1.80			4.42	4.27	7.19	1.38	2.66	-0.03	1.31
CHEV	N=	5	4	4	3	4	4	4	4	3	3	1	1	1	2	1	44					
	MW1	3.26	5.21	5.75	2.63	3.78	3.44	2.33	3.32	4.02	4.66	2.36	1.72	1.58	1.04	2.98	3.55	8.54	0.86	1.84	0.83	3.23
	MW3	3.37	5.36	5.75	2.66	3.97	3.61	2.63	3.32	4.07	4.39	2.22	1.76	1.71	1.17	2.71	3.63	8.10	1.03	1.78	0.65	2.78
CHRY	N=	1		1		1	1										4					
	MW1	4.32		6.46		3.16	1.50										3.87	6.46	1.50	2.09	0.19	1.82
	MW3	4.17		6.76		3.21	1.76										3.98	6.76	1.76	2.11	0.43	1.92
DODG	N=	1		1	1	1	1	1								1	7					
	MW1	2.73		6.28	6.57	4.95	3.85	2.53								0.60	3.93	6.57	0.60	2.17	-0.15	1.87
	MW3	2.80		6.93	6.80	5.05	5.07	3.34								0.67	4.38	6.93	0.67	2.26	-0.38	2.05
FORD	N=	5	5	3	2	3	5	4	2	2	1	1	1	1	2	2	39					
	MW1	4.64	4.73	5.31	3.19	2.15	3.28	3.10	2.73	2.17	1.41	0.48	2.10	3.29	2.33	4.13	3.45	7.10	0.48	1.55	0.42	2.83
	MW3	4.57	4.73	5.32	3.20	2.25	3.23	3.04	2.90	2.13	2.01	0.43	1.84	2.85	2.16	3.80	3.42	6.70	0.43	1.52	0.40	2.75
IMPE	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=					1											1					
	MW1					6.00											6.00	6.00	6.00	0.0	0.0	0.0
	MW3					6.25											6.25	6.25	6.25	0.0	0.0	0.0
MERC	N=	1		1		1	1	1		1							6					
	MW1	4.80		5.24		2.60	3.02	3.50		3.68							3.81	5.24	2.60	1.03	0.34	1.70
	MW3	5.31		5.20		2.64	3.13	3.72		3.90							4.02	5.31	2.64	1.06	0.17	1.68
OLDS	N=	1	1		2			1	1	1	1	1			2	1	12					
	MW1	3.82	1.82		2.77			2.55	6.03	2.81	1.39	1.20			5.49	5.98	3.51	6.29	1.20	1.83	0.40	1.75
	MW3	3.82	2.09		3.27			2.67	6.03	2.95	1.38	0.99			5.45	5.99	3.62	6.24	0.99	1.80	0.21	1.86
PLYM	N=	1	1	1	2	1	1	1							1		9					
	MW1	3.74	5.43	10.03	5.49	2.28	4.70	2.16							2.85		4.69	10.03	2.16	2.56	1.04	3.11
	MW3	3.43	5.72	10.23	5.73	2.49	5.21	2.48							2.81		4.88	10.23	2.48	2.62	0.99	2.88
PONT	N=	1	1	1	1	2	1	1	2			1		2	1	1	15					
	MW1	2.96	2.39	3.91	2.15	4.96	3.38	5.98	3.86			2.09		4.49	2.14	2.78	3.61	6.54	2.09	1.40	0.69	2.40
	MW3	2.97	2.67	3.88	2.24	4.96	3.33	5.60	3.81			2.12		4.23	2.29	2.82	3.60	6.31	2.12	1.34	0.65	2.26
RAMB	N=	1		1	1			1	1	1							6					
	MW1	4.67		3.91	7.30			0.55	3.59	3.29							3.86	7.30	0.55	2.18	0.11	2.82
	MW3	4.80		3.87	7.22			0.49	3.27	2.97							3.78	7.22	0.49	2.23	0.13	2.57
STUD	N=									1							1					
	MW1									2.26							2.26	2.26	2.26	0.0	0.0	0.0
	MW3									2.09							2.09	2.09	2.09	0.0	0.0	0.0
VOLK	N=	2	2	2	2	1	1	1	1				1				13					
	MW1	2.65	3.64	3.27	1.78	1.81	1.97	4.32	1.97				2.16				2.66	4.32	1.67	0.96	0.52	1.68
	MW3	2.58	3.78	2.99	1.57	1.73	2.02	4.24	1.86				2.12				2.53	4.24	1.54	0.93	0.57	1.88
MISC	N=	1				1											2					
	MW1	5.28				1.04											3.16	5.28	1.04	3.00	0.01	1.00
	MW3	5.25				0.96											3.11	5.25	0.96	3.04	0.01	1.00
AV/YR	N=	21	16	17	15	17	16	16	12	11	6	5	4	4	8	7	175					
	MW1	3.82	4.51	5.45	3.77	3.30	3.24	2.86	3.33	2.88	3.39	1.47	2.00	3.47	2.84	3.55	3.57					
	MW3	3.84	4.62	5.47	3.86	3.43	3.41	3.02	3.30	2.88	3.37	1.41	1.89	3.26	2.84	3.46	3.61					
RANGE																						
	MW1 HI	5.84	7.19	10.03	7.30	6.00	6.65	5.58	6.03	6.58	6.04	2.16	2.16	6.54	6.29	5.98		10.03				
	MW1 LO	1.45	1.82	2.21	1.77	1.04	1.10	0.55	1.82	0.98	1.39	0.48	1.72	1.58	0.86	0.60			0.48			
	MW3 HI	5.74	7.31	10.23	7.47	6.25	6.58	5.60	6.03	6.63	5.82	2.22	2.17	6.31	6.24	5.99		10.23				
	MW3 LO	1.46	2.09	2.50	1.54	0.96	0.94	0.49	1.65	1.07	1.38	0.49	1.76	1.71	1.03	0.67			0.43			
S.D./YR																						
	MW1	1.09	1.70	2.13	1.39	1.46	1.45	1.22	1.13	1.62	1.99	0.77	0.20	2.17	1.81	1.67				1.75		
	MW3	1.11	1.65	2.06	2.05	1.51	1.55	1.28	1.12	1.62	1.84	0.77	0.17	2.13	1.76	1.67				1.75		
SKEWNESS																						
	MW1 G1	-0.40	0.25	0.51	0.84	0.35	0.53	0.24	0.86	0.97	0.30	-0.00	-0.73	0.81	0.90	-0.41					0.73	
	MW1 G2	3.06	1.84	2.54	2.10	1.94	3.18	3.27	3.92	3.51	1.51	1.64	2.00	2.39	2.69	2.80						3.50
	MW3 G1	-0.31	0.21	0.56	0.74	0.26	0.31	0.33	0.90	1.06	0.33	-0.66	1.04	0.99	1.00	-0.19					0.71	
	MW3 G2	2.87	1.74	2.77	2.09	2.09	2.41	3.08	4.33	3.64	1.47	1.53	2.14	2.20	2.75	2.64						3.37

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR DENVER

HYDROCARBONS IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1		1	1	1	1	1	1		1					9					
MW1		5.22	2.01		4.11	7.94	10.01	23.19	8.96	9.85		10.76					9.14	23.19	2.01	6.05	1.35	4.47
MW3		4.65	1.85		3.61	7.35	8.19	21.62	7.99	8.84		10.24					8.25	21.62	1.85	5.71	1.43	4.57
CADI	N=	1	1		1		1								1		5					
MW1		4.75	7.01		6.60		7.37								7.21		6.59	7.37	4.75	1.07	-1.24	2.90
MW3		3.68	6.41		5.96		6.68								6.70		5.89	6.70	3.68	1.27	-1.30	2.97
CHEV	N=	5	4	4	4	4	3	4	4	4	2	1	1	1	2	1	44					
MW1		7.28	8.57	10.79	9.91	9.29	8.87	8.95	11.30	10.21	5.66	6.68	37.03	45.50	13.06	14.44	10.92	45.50	4.51	7.83	2.94	12.27
MW3		5.89	6.76	7.56	8.47	8.15	7.50	7.49	9.61	9.72	5.23	5.94	34.47	42.04	12.14	13.92	9.42	42.04	4.00	7.16	3.22	14.03
CHRY	N=	1			1		1	1									4					
MW1		7.55			10.18		13.40	19.09									12.56	19.09	7.55	4.98	0.45	1.82
MW3		6.32			9.23		8.89	12.89									9.34	12.89	6.32	2.71	0.35	2.02
DODG	N=	1	1	1	1		1	1	1								7					
MW1		9.58	5.35	5.22	20.67		12.93	8.58	8.75								10.16	20.67	5.22	5.34	1.13	3.24
MW3		7.91	4.10	4.60	12.92		10.36	7.80	7.89								7.95	12.92	4.10	3.08	0.28	2.17
FORD	N=	4	4	3	3	3	4	3	3	2	2	1	1	1	1	1	36					
MW1		6.36	7.33	7.66	7.52	12.99	11.35	13.21	9.24	8.71	10.12	5.67	6.15	9.45	15.23	16.51	9.54	18.28	3.46	3.74	0.79	2.79
MW3		5.84	6.64	6.71	6.84	12.20	10.36	12.12	8.19	7.82	8.62	5.61	5.64	8.35	13.80	15.15	8.64	17.03	3.27	3.43	0.99	3.29
IMPE	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
MERC	N=	1		1	1	1		1	1		1						7					
MW1		7.72		6.36	5.69	7.90		9.49	23.65		10.67						10.22	23.65	5.69	6.17	1.73	4.49
MW3		5.86		6.17	4.52	6.83		8.97	19.31		8.65						8.62	19.31	4.52	4.97	1.64	4.31
OLDS	N=	1	1	1	1	1	1	1	1	1							9					
MW1		3.60	4.29	9.10	9.99	9.71	13.98	10.56	14.57	14.36							10.02	14.57	3.60	4.04	-0.43	2.02
MW3		3.24	4.12	6.52	7.46	8.72	11.50	9.76	13.66	13.72							8.75	13.72	3.24	3.81	-0.03	1.79
PLYM	N=	1	1	2	1	1	1	1	1	1						1	11					
MW1		9.32	20.60	10.03	9.67	12.20	7.94	11.37	8.71	27.35						7.38	12.24	27.35	5.37	6.50	1.33	3.75
MW3		6.02	19.43	9.19	8.89	10.69	9.45	9.25	7.22	25.69						6.94	11.09	25.69	4.88	6.30	1.35	3.73
PONT	N=	1	2	2	1	2	2	1	1		1	1					14					
MW1		6.95	9.53	6.71	6.25	9.69	7.68	18.87	10.31		9.76	5.08					8.89	18.87	3.76	3.65	1.34	5.18
MW3		6.01	7.14	5.72	5.71	9.29	7.19	17.23	9.67		8.92	6.92					8.09	17.23	3.27	3.27	1.54	5.68
RAMB	N=	1		1		1		1		1	1			1			7					
MW1		7.90		6.98		10.82		13.07		15.84	9.35			11.23			10.75	15.84	6.98	3.05	0.43	2.19
MW3		6.11		5.68		8.82		11.14		15.20	7.95			10.68			9.37	15.20	5.68	3.31	0.59	2.41
STUD	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
VOLK	N=	1	1	1	2	1	1	1		1	1			1		1	12					
MW1		5.53	4.81	1.30	8.79	6.87	7.88	7.98		9.02	6.00			7.39		5.44	6.64	11.52	1.30	2.51	-0.16	3.62
MW3		4.47	4.16	1.03	7.75	6.58	6.49	7.78		7.65	5.48			6.59		5.30	5.92	10.64	1.03	2.36	-0.06	3.59
MISC	N=	1	1	1	1												4					
MW1		4.62	6.73	3.95	4.39												4.68	6.73	2.95	1.56	0.36	2.02
MW3		4.39	6.15	3.13	3.92												4.51	6.15	3.13	1.30	0.29	1.73
AV/YR	N=	20	17	17	18	15	16	16	13	11	8	4	2	4	4	4	169					
MW1		6.73	7.86	7.74	8.75	10.07	10.06	12.36	11.38	12.25	8.42	7.05	21.60	18.53	12.14	10.95	9.79					
MW3		5.59	6.72	6.32	7.35	9.12	8.75	10.80	9.91	11.42	7.34	7.14	20.06	16.92	11.20	10.33	8.59					
RANGE																						
MW1 HI		12.37	20.60	22.24	20.67	18.28	17.06	23.19	23.65	27.35	12.39	10.76	37.03	45.50	17.27	16.51		45.50				
MW1 LO		3.60	2.01	1.30	4.31	6.42	5.57	7.44	6.43	8.25	5.08	5.08	6.15	7.39	7.21	5.44			1.30			
MW3 HI		9.18	19.43	14.47	12.92	17.03	16.87	21.62	19.31	25.69	9.47	10.24	34.47	42.04	16.19	15.15		42.04				
MW3 LO		3.24	4.12	1.03	3.67	5.64	4.57	6.46	6.11	7.53	4.91	5.61	5.64	6.59	6.70	5.30			1.03			
S.D./YR																						
MW1		2.11	4.24	4.87	4.39	3.04	3.24	4.73	5.40	5.57	2.57	2.57	21.44	18.04	4.37	3.46				5.57		
MW3		1.43	3.45	3.47	2.73	2.93	2.98	4.14	4.16	5.37	1.40	2.12	20.73	16.94	4.54	4.41				5.09		
SKEWNESS																					2.32	
MW1 G1		0.92	1.32	1.61	1.43	1.24	0.63	0.92	1.41	2.00	3.11	0.94	2.01	1.13	0.20	0.01						19.49
MW1 G2		3.68	5.91	5.76	5.11	4.52	2.35	2.75	3.62	5.06	1.83	2.16	1.35	2.32	1.14	1.18					3.16	
MW3 G1		0.93	2.13	1.07	0.93	1.33	1.19	1.27	1.24	1.47	-0.62	0.99	0.01	1.13	0.09	-0.02						19.31
MW3 G2		3.93	8.24	3.74	2.18	4.51	4.49	4.08	3.27	5.64	1.73	2.14	1.00	2.31	1.24	1.12						

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR DENVER

CARBON MONOXIDE IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1		1	1	1	1	1	1		1					9					
MW1		63.38	87.78		76.35	162.04	124.09	148.74	113.05	136.77		163.63					120.10	168.63	63.38	37.84	-0.20	1.68
MW3		50.13	75.88		63.76	162.37	112.77	206.62	99.77	120.56		143.90					112.86	206.62	50.13	48.18	0.55	2.67
CADI	N=	1	1		1		1								1		5					
MW1		149.71	181.96		128.84		123.57								133.57		143.54	181.96	123.57	23.61	0.96	2.40
MW3		133.43	176.98		122.97		113.07								119.46		133.19	176.98	113.07	25.57	1.21	2.84
CHEV	N=	5	4	4	4	4	3	4	4	4	2	1	1	1	2	1	44					
MW1		106.25	130.01	139.07	163.87	132.22	98.55	85.50	147.70	96.27	72.10	58.93	144.26	238.51	111.62	166.49	122.30	321.05	31.23	62.25	1.30	5.02
MW3		87.77	108.36	104.75	141.34	122.17	82.58	77.42	126.83	94.71	67.47	58.89	134.21	202.49	112.88	171.33	107.20	268.66	28.86	51.85	0.98	4.22
CHRY	N=	1			1		1	1									4					
MW1		150.35			130.89		209.23	210.68									175.29	210.68	130.89	40.82	-0.11	1.15
MW3		133.43			131.57		140.98	156.50									140.62	156.50	131.57	11.35	0.77	1.96
DODG	N=	1	1	1	1		1	1	1								7					
MW1		165.21	113.31	100.42	225.03		222.38	112.08	159.16								156.80	225.03	100.42	51.81	0.33	1.57
MW3		150.65	81.70	87.59	175.92		183.34	118.23	149.67								135.30	183.34	81.70	40.50	-0.22	1.57
FORD	N=	4	4	3	3	3	4	3	3	2	2	1	1	1	1	1	36					
MW1		83.04	87.20	73.82	111.77	169.72	168.00	146.69	120.99	99.49	130.13	86.56	88.63	90.35	133.10	130.07	116.94	233.07	47.63	48.12	0.70	2.86
MW3		72.34	76.52	63.04	101.93	164.34	155.00	146.80	110.22	97.87	118.93	93.31	97.83	83.46	104.51	128.53	108.77	211.90	43.95	45.87	0.69	2.67
IMPE	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
MERC	N=	1		1	1	1		1	1		1						7					
MW1		63.24		50.06	61.09	121.55		139.01	307.36		161.46						129.11	307.36	50.06	89.63	1.16	3.29
MW3		56.10		43.99	51.86	119.50		143.04	276.91		142.18						118.80	276.91	43.99	82.06	0.98	2.98
OLDS	N=	1	1	1	1	1	1	1	1	1							9					
MW1		65.58	114.08	90.57	133.19	125.82	185.34	156.04	253.45	147.53							141.29	253.45	65.58	54.92	0.73	3.13
MW3		71.82	105.18	68.34	110.31	115.87	149.30	145.84	253.73	147.49							129.77	253.73	68.34	55.49	1.15	3.90
PLYM	N=	1	1	2	1	1	1	1	1	1						1	11					
MW1		116.18	82.99	126.98	155.46	134.73	271.43	222.41	97.25	222.87						100.65	150.68	271.43	42.82	71.87	0.24	1.87
MW3		99.37	89.28	108.40	139.64	112.14	220.51	171.26	92.40	211.48						96.17	131.74	220.51	28.95	59.69	0.07	2.04
PONT	N=	1	2	2	1	2	2	1	1		1	1					14					
MW1		95.93	135.88	62.24	74.45	126.77	106.56	206.46	129.81		131.03	223.89					123.18	223.89	59.04	53.39	0.51	2.15
MW3		94.90	102.02	50.73	69.96	115.92	98.79	199.42	125.72		129.71	203.83					111.04	203.83	44.03	50.45	0.48	2.32
RAMB	N=	1		1		1		1		1	1			1			7					
MW1		114.08		98.19		164.69		120.77		167.82	167.34			148.03			140.14	167.82	98.19	28.83	-0.31	1.47
MW3		99.35		96.22		159.03		116.24		169.06	159.98			145.29			134.45	169.06	96.22	30.02	-0.24	1.39
STUD	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
VOLK	N=	1	1	1	2	1	1	1		1	1			1		1	12					
MW1		82.09	54.48	34.51	78.87	61.63	88.57	96.91		74.20	67.78			100.51		97.04	76.29	100.51	34.51	19.58	-0.66	2.75
MW3		72.79	49.65	28.64	76.27	60.99	82.68	105.05		73.85	63.61			100.94		99.44	74.19	105.05	28.64	22.15	-0.41	2.70
MISC	N=	1	1	1	1												4					
MW1		71.59	97.85	44.68	78.71												73.21	97.85	44.68	22.02	-0.29	1.96
MW3		74.48	88.99	47.98	75.98												71.96	88.99	47.98	17.20	-0.64	2.10
AV/YR	N=	20	17	17	18	15	16	16	13	11	8	4	2	4	4	4	169					
MW1		100.04	110.18	92.63	122.92	137.44	150.34	137.20	194.91	121.21	116.52	134.51	116.45	144.35	122.48	123.56	123.88					
MW3		88.14	94.73	76.42	109.21	128.23	129.25	132.02	141.25	117.91	107.54	124.99	116.03	133.03	112.44	123.87	112.11					
RANGE																						
MW1 HI		166.34	181.96	231.21	321.05	196.35	271.43	222.41	307.36	222.83	167.34	223.89	144.26	238.51	133.57	166.49		321.05				
MW1 LO		34.08	47.63	34.51	52.90	61.63	62.55	45.92	74.56	31.23	39.29	58.93	88.63	90.35	107.85	97.04			31.23			
MW3 HI		152.56	176.98	187.85	268.68	182.29	220.51	206.62	276.91	211.48	155.98	203.83	134.21	202.49	121.55	171.33		276.91				
MW3 LO		28.86	43.95	28.64	51.84	60.99	57.14	31.68	71.17	30.78	36.84	58.89	97.83	83.46	104.22	96.17			28.64			
S.D./YR																						
MW1		39.73	39.77	57.73	66.36	34.78	63.95	48.21	84.58	55.71	45.03	75.64	39.34	67.63	12.91	32.22				55.97		
MW3		35.96	33.80	47.68	52.46	31.55	52.80	45.87	73.41	53.54	41.14	63.11	25.73	53.11	9.36	34.73				49.48		
SKEWNESS																						
MW1 G1		0.25	0.51	1.39	1.52	-0.36	0.41	0.24	0.83	0.11	-0.56	0.19	0.00	0.74	-0.16	0.57					0.96	
MW1 G2		1.86	2.42	3.73	5.63	2.89	1.91	2.46	2.15	2.29	2.10	1.40	1.01	1.96	1.19	1.72						4.02
MW3 G1		0.27	0.72	1.37	1.52	-0.21	0.49	-0.21	0.77	0.11	-0.55	0.28	0.01	0.47	0.03	0.65					0.77	
MW3 G2		2.14	3.26	3.80	5.75	2.61	1.99	2.79	2.09	2.16	2.04	1.65	1.01	1.70	0.95	1.82						3.57

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR DENVER

CARBON DIOXIDE IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1		1	1	1	1	1	1		1					9					
	MW1	668.54	491.08		648.60	508.30	456.70	429.41	451.29	378.39		519.55					505.76	668.54	378.39	96.66	0.66	2.31
	MW3	646.05	500.30		629.65	541.94	470.79	406.65	420.51	379.40		503.45					499.86	646.05	379.40	93.78	0.38	1.95
CADI	N=	1	1		1		1								1		5					
	MW1	832.88	728.92		771.70		574.25								592.04		699.96	832.88	574.25	113.03	-0.09	1.38
	MW3	797.24	715.75		742.42		546.95								566.14		673.70	797.24	546.95	111.12	-0.20	1.32
CHEV	N=	5	4	4	4	4	3	4	4	4	2	1	1	1	2	1	44					
	MW1	621.61	538.59	525.60	564.25	488.87	434.98	453.59	442.90	417.86	464.47	341.46	355.60	443.80	462.17	388.20	489.14	882.41	309.57	108.43	1.18	5.40
	MW3	607.04	521.36	514.30	507.95	465.16	415.91	445.83	431.80	396.47	456.43	328.96	350.83	428.81	436.59	375.07	470.10	699.15	302.13	94.97	0.56	2.92
CHRY	N=	1			1		1	1									4					
	MW1	669.80			533.03		442.68	480.37									531.48	669.80	442.68	99.39	0.72	1.99
	MW3	654.07			515.66		434.97	478.98									520.93	654.07	434.97	94.71	0.75	2.06
DODG	N=	1	1	1	1		1	1	1								7					
	MW1	573.47	370.93	431.01	467.79		470.86	465.02	357.60								448.10	573.47	357.60	72.29	0.38	2.50
	MW3	550.17	374.96	427.49	466.45		463.26	444.01	344.58								438.71	550.17	344.58	66.93	0.20	2.42
FORD	N=	4	4	3	3	3	4	3	3	2	2	1	1	1	1	1	36					
	MW1	647.69	534.55	534.56	561.93	448.62	437.41	467.01	454.04	507.53	539.97	322.48	345.48	399.81	578.41	453.29	493.66	759.90	322.48	98.14	0.30	2.82
	MW3	629.77	513.59	524.61	538.47	431.06	418.90	349.64	440.82	496.48	518.67	303.65	333.40	386.77	550.45	431.45	476.08	729.94	303.65	95.17	0.27	2.77
IMPE	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
MERC	N=	1		1	1	1		1	1		1						7					
	MW1	640.38		518.21	495.40	392.85		427.53	521.80		573.54						509.96	640.38	392.85	83.65	0.10	2.14
	MW3	618.93		537.10	468.99	379.82		425.93	498.70		536.99						495.21	618.93	379.82	79.19	0.06	2.18
OLDS	N=	1	1	1	1	1	1	1	1	1							9					
	MW1	644.00	665.45	576.91	581.15	510.04	495.98	488.19	497.05	439.85							544.30	665.45	439.85	76.52	0.38	1.89
	MW3	614.58	646.70	562.63	558.47	494.86	480.72	467.27	461.58	404.16							521.22	646.70	404.16	79.12	0.23	1.95
PLYM	N=	1	1	2	1	1	1	1	1	1						1	11					
	MW1	363.86	473.37	531.62	478.89	514.69	436.20	446.59	281.62	381.27						477.19	447.00	557.06	281.62	78.44	-0.75	2.90
	MW3	389.51	450.53	518.93	460.14	507.82	418.27	433.03	278.45	365.31						454.91	434.17	544.87	278.45	76.80	-0.59	2.89
PONT	N=	1	2	2	1	2	2	1	1		1	1					14					
	MW1	692.65	572.81	651.49	547.34	491.45	513.16	329.71	449.91		520.20	476.00					533.84	692.65	329.71	93.70	-0.20	3.05
	MW3	662.53	550.87	621.85	543.09	480.51	490.10	312.04	427.82		497.06	460.97					515.01	662.50	312.04	90.54	-0.35	3.14
RAMB	N=	1		1		1		1		1	1			1			7					
	MW1	412.23		353.00		407.63		329.97		315.59	291.96			307.03			345.35	412.23	291.96	48.05	0.50	1.69
	MW3	350.49		335.97		401.58		341.96		299.27	277.80			287.79			327.84	401.58	277.80	43.09	0.46	2.22
STUD	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
VOLK	N=	1	1	1	2	1	1	1		1	1			1		1	12					
	MW1	319.38	295.76	264.82	287.48	166.06	209.12	302.90		224.43	229.09			305.30		223.67	259.96	319.38	166.06	47.94	-0.52	2.10
	MW3	313.59	291.83	269.01	276.65	161.14	210.37	294.68		224.54	214.44			290.56		214.74	252.81	313.59	161.14	46.39	-0.50	2.16
MISC	N=	1	1	1	1												4					
	MW1	334.55	515.04	359.86	282.73												373.05	515.04	282.73	99.96	0.80	2.12
	MW3	307.14	509.31	357.46	263.34												359.44	509.31	263.34	107.14	0.74	2.02
AV/YR	N=	20	17	17	18	15	16	16	13	11	8	4	2	4	4	4	169					
	MW1	592.53	528.16	504.72	518.03	452.26	447.92	413.45	437.93	402.37	452.96	414.88	350.54	363.99	523.70	385.59	476.31					
	MW3	571.93	514.76	494.22	491.49	440.14	433.06	402.31	421.64	386.51	434.57	389.26	342.12	348.49	497.45	369.05	460.09					
RANG																						
	MW1 HI	832.88	728.92	659.52	882.41	542.58	574.25	562.33	521.80	545.07	573.54	519.55	355.60	443.80	592.04	477.19		882.41				
	MW1 LO	319.38	295.76	264.82	282.73	166.06	209.12	302.90	281.62	224.43	229.09	322.48	345.48	305.30	377.18	223.67			166.06			
	MW3 HI	797.24	715.75	635.92	742.42	541.94	546.95	560.08	498.70	527.78	536.99	503.45	350.83	428.81	566.14	454.91		797.24				
	MW3 LO	307.14	291.83	264.01	263.34	161.14	210.37	294.68	278.45	224.54	214.44	303.65	333.40	287.79	353.19	214.74			161.14			
S.D./YR																						
	MW1	138.36	105.28	112.15	154.86	90.82	82.90	76.57	64.86	93.57	120.20	97.68	7.16	69.14	99.48	114.31				121.65		
	MW3	136.53	100.58	106.26	133.32	90.39	77.37	75.37	58.37	88.03	121.83	97.89	12.33	70.62	98.06	108.19				115.52		
SKEWNESS																						
	MW1 G1	-0.67	-0.32	-0.52	0.49	-2.17	-1.38	0.13	-1.05	-0.13	-0.90	0.68	-0.49	0.20	-1.03	-0.81					0.26	
	MW1 G2	2.77	3.09	2.34	3.36	7.71	5.51	2.33	3.69	2.55	2.27	1.16	6.26	1.26	2.24	2.03						3.46
	MW3 G1	-0.75	-0.22	-0.65	-0.10	-1.99	-1.45	0.28	-1.12	-0.20	-1.00	0.06	0.30	0.18	-1.02	-0.85					0.10	
	MW3 G2	2.72	3.23	2.39	2.66	7.17	5.49	2.25	3.98	2.41	2.30	1.17	-6.38	1.23	2.23	2.07						3.10

SUMMARY OF EXHAUST EMISSION VALUES FOR DENVER

CORRECTED OXIDES OF NITROGEN IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1		1	1	1	1	1	1		1					9					
MW1		2.65	1.00		2.96	0.51	1.66	1.03	2.59	1.41		1.30					1.68	2.96	0.51	0.86	0.33	1.72
MW3		2.61	1.12		2.91	0.44	2.28	0.86	2.44	1.66		1.46					1.76	2.91	0.44	0.86	-0.13	1.70
CADI	N=	1	1		1		1								1		5					
MW1		1.64	2.93		2.75		3.31								3.73		2.48	3.73	1.64	0.79	-0.65	2.37
MW3		1.49	3.16		2.55		3.12								3.55		2.78	3.55	1.49	0.81	-0.83	2.35
CHEV	N=	5	4	4	4	4	3	4	4	4	2	1	1	1	2	1	44					
MW1		3.63	2.34	2.17	2.65	1.71	2.86	1.67	2.06	2.42	2.88	1.72	0.85	0.91	2.17	1.74	2.33	7.64	0.62	1.43	1.68	6.14
MW3		3.88	2.28	2.27	2.15	1.58	2.92	1.70	2.16	2.34	2.80	1.62	0.83	1.13	1.93	1.44	2.29	7.82	0.83	1.36	1.85	7.48
CHRY	N=	1			1		1	1									4					
MW1		2.04			2.85		1.09	1.97									1.99	2.85	1.09	0.73	-0.07	2.00
MW3		2.10			2.79		1.95	2.26									2.13	2.79	1.35	0.60	-0.30	1.98
DODG	N=	1	1	1	1		1	1	1								7					
MW1		3.21	3.02	1.88	1.35		1.39	2.09	1.82								2.11	3.21	1.35	0.74	0.56	1.82
MW3		3.16	3.58	1.99	1.49		1.48	1.74	1.78								18	3.58	1.48	0.85	0.88	2.05
FORD	N=	4	4	3	3	3	4	3	3	2	2	1	1	1	1	1	30					
MW1		4.30	3.77	3.55	2.74	1.94	1.43	1.29	2.40	3.49	3.47	1.41	1.23	2.85	3.07	3.39	2.77	5.10	0.83	1.24	0.13	1.92
MW3		4.26	3.77	3.60	2.64	1.78	1.27	1.17	2.41	3.55	3.21	1.14	1.08	2.78	3.20	3.45	2.70	5.28	0.70	1.29	0.11	2.00
IMPE	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
MERC	N=	1		1	1	1		1	1		1						7					
MW1		3.51		4.42	1.68	1.59		2.66	1.37		1.95						2.60	4.42	1.37	1.23	0.41	1.47
MW3		3.40		4.89	1.66	1.46		3.20	1.76		1.87						2.61	4.89	1.46	1.27	0.82	2.33
OLDS	N=	1	1	1	1	1	1	1	1	1							9					
MW1		2.34	2.33	2.40	2.40	2.30	1.65	1.33	1.19	1.93							1.99	2.40	1.19	0.49	-0.66	1.80
MW3		2.27	2.30	2.32	2.38	2.48	1.70	1.30	0.98	1.63							1.93	2.48	0.98	0.55	-0.61	1.91
PLYM	N=	1	1	2	1	1	1	1	1	1						1	11					
MW1		2.01	1.79	2.14	1.64	2.66	0.47	1.45	1.64	0.44						4.73	1.92	4.73	0.44	1.29	0.91	3.15
MW3		2.17	1.61	2.24	1.66	3.16	0.49	1.68	1.49	0.42						4.10	1.94	4.10	0.42	1.22	0.51	2.13
PONT	N=	1	2	2	1	2	2	1	1		1	1					14					
MW1		3.15	2.63	2.68	3.56	2.63	4.15	0.44	1.87		1.79	1.53					2.61	6.67	0.44	1.50	1.31	4.96
MW3		3.12	2.78	2.76	3.67	2.62	4.16	0.39	1.86		1.65	1.47					2.63	6.84	0.39	1.56	1.30	4.95
RAMB	N=	1		1		1		1		1	1			1			7					
MW1		1.50		1.89		1.11		1.50		0.75	0.51			0.86			1.16	1.89	0.51	0.50	0.15	1.78
MW3		1.31		1.80		1.05		1.82		0.63	0.51			0.69			1.12	1.82	0.51	0.55	0.30	1.91
STUD	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
VOLK	N=	1	1	1	2	1	1	1		1	1			1		1	12					
MW1		1.31	2.06	0.67	1.49	1.08	0.67	1.57		1.17	1.16			0.95		0.97	1.22	2.06	0.67	0.41	0.52	2.80
MW3		1.25	2.01	0.66	1.27	1.03	0.64	1.36		1.20	1.01			0.89		0.90	1.13	2.01	0.64	0.38	0.91	3.65
MISC	N=	1	1	1	1												4					
MW1		2.27	3.43	2.65	1.85												2.50	3.43	1.85	0.71	0.50	1.72
MW3		1.76	3.70	2.43	1.51												2.35	3.70	1.51	0.99	0.69	1.99
AV/YR	N=	20	17	17	18	15	16	16	13	11	8	4	2	4	4	4	169					
MW1		3.04	2.73	2.53	2.39	1.82	2.06	1.60	2.00	2.04	2.27	1.49	1.05	1.43	2.79	2.71	2.26					
MW3		3.06	2.78	2.59	2.21	1.77	2.08	1.56	2.02	2.09	2.13	1.43	0.96	1.37	2.66	2.48	2.23					
RANGE																						
MW1 HI		7.64	4.69	4.78	5.79	3.51	6.67	3.66	3.98	4.58	4.59	1.72	1.23	2.85	3.73	4.73		7.64				
MW1 LO		1.31	1.00	0.67	1.35	0.51	0.67	0.44	0.67	0.44	0.51	1.30	0.85	0.86	1.66	0.97			0.44			
MW3 HI		7.82	4.56	4.39	3.67	3.43	6.86	3.20	3.12	4.85	4.67	1.67	1.08	2.79	3.55	4.10		7.82				
MW3 LO		1.25	1.05	0.66	1.08	0.44	0.49	0.39	0.98	0.42	0.51	1.14	0.83	0.69	1.32	0.90			0.39			
S.D./YR																						
MW1		1.55	1.13	1.22	1.12	0.87	1.55	0.77	0.72	1.36	1.40	0.19	0.27	0.98	0.87	1.69				1.24		
MW3		1.60	1.11	1.24	0.80	0.90	1.61	0.76	0.65	1.41	1.37	0.21	0.14	0.96	0.99	1.55				1.24		
SKEWNESS																						
MW1 G1		1.39	0.22	0.19	1.67	0.71	1.80	1.22	-0.14	0.81	0.39	0.36	0.30	1.15	-0.32	0.20					1.22	
MW1 G2		4.66	2.02	2.20	5.84	2.65	6.10	4.48	2.37	2.43	1.81	1.75	1.01	2.33	1.90	1.49						5.33
MW3 G1		1.40	0.04	0.23	3.52	0.62	1.76	0.84	0.31	0.97	0.24	-0.72	0.01	1.04	-0.59	0.03					1.22	
MW3 G2		5.04	1.79	2.13	2.07	2.26	5.98	3.15	2.45	2.78	1.99	2.12	1.01	2.24	1.85	1.20						5.33

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR CHICAGO

HYDROCARBONS IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1	2	2			1	1		1				1		10					
4W1		2.49	3.49	5.19	7.84			7.04	6.98		7.09				53.05		10.62	53.05	2.49	15.39	2.96	7.76
4W3		2.57	3.06	4.40	6.61			6.47	6.93		6.94				50.75		9.88	50.75	2.57	14.50	2.58	7.63
CADI	N=		1				1		1					1			4					
4W1			4.66				7.85		5.38					5.92			5.93	7.85	4.66	1.37	0.74	2.08
4W3			4.15				7.43		5.21					5.77			5.64	7.43	4.15	1.37	0.96	1.93
CHEV	N=	5	3	4	5	3	5	6	5	1	4	1				2	44					
4W1		3.51	4.79	4.77	4.35	10.39	10.55	12.69	5.79	9.96	7.85	5.56				6.63	7.31	31.88	2.23	5.08	2.88	13.06
4W3		3.26	4.37	3.99	3.84	9.50	10.11	11.40	5.01	8.84	6.85	5.05				6.16	6.61	29.64	1.75	4.82	2.87	13.45
CHRY	N=				1	1	1										3					
4W1					7.15	9.03	10.29										8.83	10.29	7.15	1.59	-0.23	1.91
4W3					5.88	7.62	8.92										7.48	8.92	5.88	1.53	-0.18	1.91
DODG	N=		1	2		2	1	2	1		1						10					
4W1			3.61	7.99		6.62	5.39	13.00	4.30		4.03						7.26	17.18	3.61	4.29	1.34	3.80
4W3			3.53	5.88		5.75	4.26	8.10	3.92		3.62						5.48	10.23	3.53	2.29	0.99	2.68
FORD	N=	3	3	4	4	5	2	4	3	1	2	1				1	33					
4W1		2.30	3.92	5.06	3.70	8.87	6.57	22.21	7.99	10.98	6.15	5.01				3.98	7.77	72.44	1.28	12.02	4.94	27.11
4W3		2.07	3.53	4.35	3.46	8.20	6.01	20.29	6.70	11.00	5.06	4.84				3.56	7.03	65.92	1.17	10.94	4.94	27.13
IMPE	N=																0					
4W1																	0.0	0.0	0.0	0.0	0.0	0.0
4W3																	0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=	1		1													2					
4W1		5.41		5.70													5.56	5.70	5.41	0.22	0.00	-0.50
4W3		4.36		4.20													4.29	4.36	4.20	0.12	0.03	16.86
MERC	N=				1	1				1							3					
4W1					4.83	6.41				7.23							6.15	7.20	4.83	1.21	-0.37	1.91
4W3					4.76	5.00				5.95							5.24	5.95	4.76	0.63	0.60	1.67
OLDS	N=		1	2	2		1	1	1		1	1		1			11					
4W1			3.71	19.00	4.21		8.39	10.38	5.48		9.49	2.88		4.62			8.30	33.74	2.88	8.81	2.46	7.73
4W3			3.34	17.25	3.54		7.72	9.58	5.46		8.82	2.43		4.46			7.59	30.78	2.43	8.07	2.42	7.99
PLYM	N=	1	2	1	2	1	1	1	1								10					
4W1		5.31	5.51	5.74	5.86	8.62	12.16	10.63	5.13								7.04	12.16	3.35	2.83	0.57	2.17
4W3		5.29	5.30	4.62	4.46	7.98	11.41	6.68	4.12								5.97	11.41	3.13	2.35	1.24	3.98
PONT	N=	2	2	2	2	1	2	3	3	1					1		19					
4W1		3.74	2.94	3.47	3.88	6.75	6.07	25.08	6.10	7.27					8.60		8.24	64.40	2.84	13.73	3.89	16.45
4W3		3.56	2.66	3.30	3.25	6.33	5.18	23.59	5.18	6.32					8.25		7.52	60.98	2.51	13.06	3.90	16.51
RAMB	N=	1	1	1			1	1	1								6					
4W1		1.58	1.99	3.73			5.92	6.53	4.42								4.03	6.53	1.58	2.02	-0.01	1.99
4W3		1.50	1.69	3.47			4.69	5.71	4.19								3.55	5.71	1.50	1.68	-0.13	1.62
STUD	N=																0					
4W1																	0.0	0.0	0.0	0.0	0.0	0.0
4W3																	0.0	0.0	0.0	0.0	0.0	0.0
VOLK	N=	1	1	2	1	1	1	1	1	1	1	1			1		13					
4W1		3.22	2.63	2.75	4.89	9.87	10.10	6.27	9.04	9.27	23.74	4.74			13.75		7.70	20.74	2.63	5.29	1.16	3.81
4W3		2.95	2.41	2.56	4.07	9.51	9.26	6.04	9.02	9.20	24.61	4.37			13.16		7.66	24.61	2.41	6.18	1.64	5.36
MISC	N=		1														1					
4W1			2.40														2.40	2.40	2.40	0.0	0.0	0.0
4W3			2.11														2.11	2.11	2.11	0.0	0.0	0.0
AV/YR	N=	15	17	21	20	15	16	20	18	5	10	4	0	2	3	3	169					
4W1		3.33	3.56	6.20	4.86	8.64	8.63	15.36	6.22	8.86	8.51	4.55	0.0	5.22	29.14	5.75	7.58					
4W3		3.08	3.51	5.34	4.18	7.83	7.92	13.55	5.53	8.27	8.15	4.19	0.0	5.12	24.56	5.33	6.83					
RANGE																						
4W1 HI		5.41	7.37	33.74	10.97	15.19	17.53	72.44	14.06	10.98	23.74	5.56	0.0	5.92	53.05	6.54		72.44				
4W1 LO		1.28	1.99	2.71	2.73	4.79	3.91	3.83	3.91	7.27	4.03	2.88	0.0	4.62	8.60	3.98			1.28			
4W3 HI		5.29	6.72	30.78	8.83	12.82	17.75	65.92	11.51	11.00	24.61	5.05	0.0	5.77	50.75	8.40		65.92				
4W3 LO		1.17	1.69	2.51	1.75	3.80	3.74	3.77	3.13	5.95	3.62	2.43	0.0	4.46	8.25	3.55			1.17			
S.D./YR																						
4W1		1.25	1.46	6.57	2.08	2.93	3.44	19.20	2.57	1.62	4.75	1.17	0.0	0.35	24.32	2.46				4.73		
4W3		1.16	1.37	5.96	1.65	2.68	3.56	17.96	2.16	2.12	6.16	1.20	0.0	0.93	23.25	2.70				8.70		
SKEWNESS																						
4W1 G1		0.22	1.01	3.75	1.21	1.98	0.99	2.29	1.81	0.10	1.84	-0.85	0.0	0.00	0.68	0.66					0.25	
4W1 G2		2.27	3.35	16.20	4.10	3.41	4.62	6.76	5.96	1.58	5.62	2.15	0.0	0.39	1.51	1.51						36.42
4W3 G1		0.13	0.90	3.97	1.04	0.55	1.30	2.32	1.40	0.36	2.13	-0.47	0.0	0.00	0.68	0.70					0.22	
4W3 G2		2.25	3.15	17.61	4.13	2.90	4.73	6.74	4.40	1.58	6.41	2.13	0.0	0.39	1.51	1.51						33.59

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STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR CHICAGO

CARBON MONOXIDE IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1	2	2			1	1		1				1		10					
MW1		33.75	24.73	86.65	162.58			80.82	45.07		99.03				79.09		86.10	263.03	24.73	67.12	1.97	6.12
MW3		34.21	16.33	69.35	140.12			80.64	41.91		97.39				71.68		76.13	236.20	16.33	60.60	1.90	5.89
CADI	N=		1				1		1					1			4					
MW1			111.96				153.82		147.06					23.55			109.09	153.82	23.55	59.92	-0.86	2.06
MW3			103.52				150.31		137.59					23.21			103.66	150.31	23.21	57.16	-0.78	2.90
CHEV	N=	5	3	4	5	3	5	6	5	1	4	1				2	44					
MW1		51.47	46.15	60.96	78.37	117.63	87.07	96.02	71.16	98.97	86.63	52.60				51.22	76.19	154.88	10.72	32.69	0.48	2.95
MW3		47.72	42.91	46.34	74.64	111.19	84.12	87.94	60.82	82.24	78.71	52.25				88.50	71.32	173.33	9.40	33.49	0.89	3.87
CHRY	N=				1	1	1										3					
MW1					114.67	103.53	189.41										135.87	189.41	103.53	46.78	0.47	1.51
MW3					103.66	81.70	134.32										106.56	134.32	81.70	26.43	0.20	1.91
DODG	N=		1	2		2	1	2	1		1						10					
MW1			37.41	104.40		73.41	95.04	158.98	70.15		61.64						93.79	224.60	37.41	58.21	1.33	3.64
MW3			31.29	70.06		58.87	62.83	94.92	62.44		51.64						65.60	133.12	31.29	30.28	1.23	3.62
FORD	N=	3	3	4	4	5	2	4	3	1	2	1				1	33					
MW1		32.94	42.87	78.71	47.72	100.57	57.28	73.18	71.55	134.36	74.86	45.51				46.09	67.69	167.09	13.87	34.67	0.76	3.50
MW3		30.61	32.34	62.76	44.16	89.68	53.21	69.66	60.18	130.60	58.93	44.16				44.25	59.62	150.97	11.61	32.87	0.84	3.45
IMPE	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=	1		1													2					
MW1		170.53		61.47													116.01	170.53	61.47	77.12	0.00	1.00
MW3		153.81		41.44													97.63	153.81	41.44	79.46	0.01	1.00
MERC	N=				1	1				1							3					
MW1					34.91	90.81				108.14							77.96	108.14	34.91	38.28	-0.54	1.51
MW3					27.81	65.07				77.71							56.87	77.71	27.81	25.94	-0.52	1.50
OLDS	N=		1	2	2		1	1	1		1	1		1			11					
MW1			41.73	66.74	50.81		103.23	109.05	93.38		95.08	51.32		42.30			70.11	109.05	37.15	29.21	0.10	1.25
MW3			35.80	58.76	38.54		87.32	79.89	91.54		91.04	45.02		40.95			60.57	91.54	24.42	27.24	0.01	1.29
PLYM	N=	1	2	1	2	1	1	1	1								10					
MW1		65.23	52.87	76.27	44.34	112.19	174.92	104.88	66.31								79.16	174.92	24.82	42.03	1.15	3.79
MW3		63.31	54.35	57.07	39.16	117.03	151.65	80.69	51.21								70.40	151.65	24.11	37.15	1.15	3.41
PONT	N=	2	2	2	2	1	2	3	3	1					1		19					
MW1		55.66	40.65	54.99	53.90	68.27	80.37	50.28	67.95	97.22					84.87		61.91	132.24	28.49	27.69	1.03	3.48
MW3		52.25	33.51	47.07	36.39	69.06	71.16	43.81	60.22	85.39					84.07		54.20	113.10	24.21	26.15	0.83	2.60
RAMB	N=	1	1	1			1	1	1								6					
MW1		15.19	47.65	41.19			168.35	37.97	112.68								70.47	168.35	15.19	58.03	0.87	2.76
MW3		12.41	42.58	38.18			155.05	44.66	114.29								67.87	155.05	12.41	54.58	0.73	1.99
STUD	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
VOLK	N=	1	1	2	1	1	1	1	1	1	1	1			1		13					
MW1		31.85	94.96	40.01	42.56	68.11	67.85	43.63	95.52	53.62	63.79	27.75			154.16		60.27	154.16	19.36	34.64	1.54	5.28
MW3		29.10	48.14	39.21	39.52	67.73	66.17	41.43	95.25	53.44	62.66	25.64			151.00		58.35	151.00	20.13	34.49	1.53	5.10
MISC	N=		1														1					
MW1			32.61														32.61	32.61	32.61	0.0	0.0	0.0
MW3			21.52														21.52	21.52	21.52	0.0	0.0	0.0
AV/YR	N=	15	17	21	20	15	16	20	16	5	10	4	0	2	3	3	169					
MW1		52.23	47.34	68.63	69.98	96.17	103.96	85.75	78.02	98.47	81.56	44.30	0.0	32.93	136.04	49.51	74.99					
MW3		48.52	41.22	54.19	61.47	86.69	92.32	72.76	69.98	85.88	73.55	41.77	0.0	32.10	102.26	73.75	66.37					
RANGE																						
MW1 HI		170.53	111.96	165.77	263.03	167.09	189.41	224.60	147.06	134.36	99.33	52.60	0.0	42.30	154.16	73.10		263.03				
MW1 LO		13.72	15.97	19.36	22.12	63.49	28.49	37.97	28.72	53.62	60.14	27.75	0.0	23.55	79.09	29.33			10.72			
MW3 HI		153.81	103.52	102.25	234.20	150.97	155.05	133.12	137.59	130.60	99.00	52.25	0.0	40.98	151.00	101.05		234.20				
MW3 LO		9.40	11.74	20.13	17.39	43.96	28.10	32.22	24.21	53.44	44.30	25.64	0.0	23.21	71.68	44.25			9.40			
S.D./YR																						
MW1		41.82	21.33	31.04	55.91	24.28	51.89	42.80	29.49	29.14	15.83	11.46	0.0	13.27	41.78	22.09				41.05		
MW3		37.69	21.28	29.74	54.91	29.24	45.27	28.43	30.57	27.99	19.76	11.35	0.0	12.57	42.69	28.47				36.73		
SKEWNESS																						
MW1 G1		1.68	1.45	1.33	2.33	0.97	0.18	1.70	0.56	-0.49	-0.26	-0.97	0.0	0.33	0.70	0.78					1.37	
MW1 G2		5.45	6.08	5.44	8.32	3.56	1.79	6.59	2.90	2.49	1.62	2.12	0.0	1.91	1.50	1.50						5.83
MW3 G1		1.52	1.34	0.56	2.12	0.65	0.15	2.61	0.52	0.70	-0.13	-0.78	0.0	0.30	0.65	-0.14					1.25	
MW3 G2		5.09	5.41	2.31	6.49	2.45	1.64	2.63	2.56	2.61	1.73	2.14	0.0	1.01	1.91	1.51						5.18

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR CHICAGO

CARBON DIOXIDE IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1	2	2			1	1		1				1		10					
	M1	630.43	798.55	514.91	473.35			377.56	219.87		566.58				737.98		530.75	798.55	219.87	177.42	-0.20	2.25
	M3	628.33	743.90	516.48	459.43			369.96	215.75		544.76				770.45		522.49	770.45	215.75	175.39	-0.22	2.18
CADI	N=		1				1		1					1			4					
	M1		694.86				556.47		611.71					587.28			612.59	694.86	556.47	59.33	0.68	1.96
	M3		652.85				541.62		595.20					580.72			592.60	652.85	541.62	46.11	0.34	2.02
CHEV	N=	5	3	4	5	3	5	6	5	1	4	1				2	44					
	M1	597.06	541.02	541.21	406.91	392.40	452.49	345.39	435.04	386.69	451.64	414.39				435.58	453.95	811.02	263.19	106.27	0.95	4.53
	M3	572.44	531.06	542.93	394.00	389.28	445.80	337.17	442.98	380.69	446.10	405.13				417.75	446.31	779.80	254.83	102.61	0.92	4.16
CHRY	N=				1	1	1										3					
	M1				591.85	500.13	588.71										560.24	591.85	500.13	52.28	-0.70	1.51
	M3				571.93	500.35	588.02										553.44	588.02	500.35	46.68	-0.61	1.62
DODG	N=		1	2		2	1	2	1		1						10					
	M1		595.89	498.74		447.81	562.39	408.84	366.15		449.98						468.52	595.89	363.53	78.01	0.10	2.00
	M3		588.19	500.43		440.45	576.38	425.61	351.04		437.74						468.64	588.19	351.04	80.77	0.04	1.88
FORD	N=	3	3	4	4	5	2	4	3	1	2	1				1	33					
	M1	600.10	693.46	559.93	597.29	509.43	496.74	475.02	450.98	434.79	483.35	341.85				447.67	530.13	1098.91	338.61	155.12	1.60	6.60
	M3	580.27	632.93	537.63	561.55	507.87	487.10	455.43	445.38	417.79	493.60	323.54				436.62	515.85	1077.11	323.54	148.06	1.69	7.27
IMPE	N=																0					
	M1																0.0	0.0	0.0	0.0	0.0	0.0
	M3																0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=	1		1													2					
	M1	775.82		573.54													674.68	775.82	573.54	143.04	0.00	1.01
	M3	720.43		587.84													654.14	720.43	587.84	93.76	0.00	1.01
MERC	N=				1	1				1							3					
	M1				643.08	548.65				523.55							571.76	643.08	523.55	63.04	0.59	1.54
	M3				647.18	532.76				517.24							565.73	647.18	517.24	70.97	0.67	1.54
OLDS	N=		1	2	2		1	1	1		1	1		1			11					
	M1		542.09	501.32	622.50		549.27	475.83	479.41		566.05	825.73		429.59			554.15	825.73	429.59	113.67	1.44	4.13
	M3		522.24	472.68	592.25		516.80	472.20	466.58		530.07	802.63		431.28			533.97	802.63	431.28	107.78	1.63	4.63
PLYM	N=	1	2	1	2	1	1	1	1								10					
	M1	548.56	657.65	519.78	552.56	263.11	348.67	371.05	386.18								485.78	661.56	263.11	135.56	-0.23	1.80
	M3	552.44	636.40	523.09	547.27	311.79	362.41	391.26	380.15								488.85	639.78	311.79	117.74	-0.18	1.59
PONT	N=	2	2	2	2	1	2	3	3	1					1		19					
	M1	632.56	583.14	448.85	565.24	599.73	459.92	516.90	473.07	522.70					398.49		517.38	659.18	239.90	106.19	-1.03	3.67
	M3	614.57	574.64	446.58	557.17	570.38	451.67	504.50	476.47	499.34					414.73		511.41	648.44	231.18	103.49	-1.01	3.87
RAMB	N=	1	1	1			1	1	1								6					
	M1	414.81	434.97	498.38			407.99	299.36	406.50								410.34	498.38	299.36	64.37	-0.55	2.98
	M3	411.27	417.75	492.95			393.54	348.18	394.62								409.72	492.95	348.18	47.48	0.69	2.98
STUD	N=																0					
	M1																0.0	0.0	0.0	0.0	0.0	0.0
	M3																0.0	0.0	0.0	0.0	0.0	0.0
VOLK	N=	1	1	2	1	1	1	1	1	1	1	1			1		13					
	M1	312.13	449.34	282.18	351.04	200.36	250.14	246.77	242.50	234.92	207.36	242.93			202.88		269.60	449.34	200.36	69.94	1.40	4.36
	M3	313.97	480.38	279.00	341.10	201.06	253.80	248.07	243.53	232.21	206.91	233.85			196.21		269.93	480.38	196.21	76.54	1.69	5.43
MISC	N=		1														1					
	M1		364.37														364.37	364.37	364.37	0.0	0.0	0.0
	M3		346.72														346.72	346.72	346.72	0.0	0.0	0.0
AV/YR	N=	15	17	21	20	15	16	20	18	5	10	4	0	2	3	3	169					
	M1	532.17	592.07	499.44	519.85	448.80	464.97	405.57	425.54	420.54	454.33	456.23	0.0	508.44	446.46	439.61	483.86					
	M3	563.91	577.42	493.17	504.44	446.97	458.92	401.96	423.74	409.44	449.11	441.29	0.0	506.00	460.47	424.05	475.75					
RANGE																						
	M1	HI 811.32	1098.91	784.41	702.48	669.46	588.71	571.51	611.71	523.55	594.10	825.73	0.0	587.28	737.99	447.67		1098.91				
	M1	LO 364.94	364.37	260.36	263.19	200.36	250.14	246.77	219.87	234.92	207.36	242.93	0.0	429.59	202.88	427.23			200.36			
	M3	HI 779.80	1077.11	687.26	662.94	649.64	588.02	559.46	636.86	517.24	613.85	802.63	0.0	580.72	770.45	436.62		1077.11				
	M3	LO 380.28	346.72	262.71	254.83	201.06	253.80	248.07	215.75	232.21	206.91	233.85	0.0	431.28	196.21	406.29			196.21			
S.D./YR																						
	M1	166.45	172.37	136.06	114.78	129.33	90.32	97.09	115.64	119.22	114.66	256.17	0.0	111.51	270.76	10.89				138.88		
	M3	154.34	164.98	97.83	111.26	119.74	86.53	84.79	118.98	114.09	114.33	250.95	0.0	105.63	289.84	15.82				132.95		
SKEWNESS																						
	M1	G1	-0.52	1.44	0.15	-0.65	-0.15	-0.69	0.33	-0.18	-0.70	-0.85	0.90	0.0	0.01	0.32	-0.52					0.57	
	M1	G2	2.06	5.50	4.89	2.62	2.36	3.04	2.39	2.42	2.19	3.16	2.16	0.0	1.00	1.51	-21.00						4.56
	M3	G1	-0.57	1.52	-0.54	-0.62	-0.17	-0.56	0.30	-0.13	-0.68	-0.70	0.93	0.0	0.00	0.29	-0.52					0.54	
	M3	G2	2.10	6.09	3.64	2.55	2.50	3.10	2.45	2.42	2.20	3.17	2.15	0.0	1.00	1.51	-2.35						4.47

SUMMARY OF EXHAUST EMISSION VALUES FOR CHICAGO

CORRECTED OXIDES OF NITROGEN IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1	?	?			1	1		1				1		10					
	MW1	3.46	5.65	3.46	3.21			2.37	2.12		3.14				6.05		3.70	6.05	0.46	1.83	-0.14	2.11
	MW3	3.39	5.51	4.07	3.12			2.32	2.24		2.74				6.13		3.68	6.13	0.48	1.84	-0.13	1.99
CADI	N=		1				1		1					1			4					
	MW1		5.30				3.99		1.00					6.28			4.12	6.28	1.00	2.31	-0.58	1.89
	MW3		4.80				3.74		0.99					7.64			4.30	7.64	0.99	2.75	0.03	1.91
CHEV	N=	5	3	4	5	3	5	6	5	1	4	1				2	44					
	MW1	4.06	4.46	5.05	2.93	2.15	3.19	1.97	2.93	3.59	3.72	3.74				4.89	3.40	7.23	0.84	1.27	0.55	3.58
	MW3	3.85	4.41	5.23	2.84	2.12	3.20	1.95	3.17	3.50	3.83	3.66				4.75	3.40	6.65	0.95	1.24	0.30	2.80
CHRY	N=				1	1	1										3					
	MW1				4.60	3.88	2.16										3.55	4.60	2.16	1.26	-0.45	1.50
	MW3				4.51	4.34	3.00										3.95	4.51	3.00	0.83	-0.67	1.50
DODG	N=		1	2		2	1	2	1		1						10					
	MW1		4.73	2.98		4.77	3.28	2.43	2.31		4.57						3.53	6.79	2.12	1.49	1.06	3.22
	MW3		4.99	3.56		4.92	3.95	3.16	2.31		4.60						3.92	6.89	2.31	1.33	1.09	3.62
FORD	N=	3	3	4	4	5	2	4	3	1	2	1				1	33					
	MW1	4.21	5.49	5.01	6.13	2.32	5.83	3.85	2.90	1.80	3.45	2.61				6.02	4.20	9.43	0.43	2.00	0.17	2.98
	MW3	4.13	5.71	5.44	6.01	2.38	6.37	3.72	3.00	1.76	4.04	2.33				5.95	4.31	8.47	0.41	1.96	-0.16	2.38
IMPE	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=	1		1													2					
	MW1	3.12		5.41													4.27	5.41	3.12	1.62	0.00	1.00
	MW3	2.92		5.56													4.25	5.56	2.92	1.87	0.01	1.00
MERC	N=				1	1				1							3					
	MW1				6.48	2.93				4.73							4.72	6.48	2.93	1.78	-0.01	1.51
	MW3				6.66	3.06				5.45							5.06	6.66	3.06	1.84	-0.37	1.51
OLDS	N=		1	2	2		1	1	1		1	1		1			11					
	MW1		3.68	4.14	4.63		3.47	1.69	3.47		4.05	3.11		4.15			3.75	6.42	1.69	1.17	0.67	4.24
	MW3		3.86	4.16	4.52		3.40	2.53	3.37		3.98	3.34		4.09			3.82	6.19	2.53	0.98	1.21	4.41
PLYM	N=	1	2	1	2	1	1	1	1								10					
	MW1	4.12	3.81	3.72	5.22	1.08	0.31	2.79	3.01								3.31	6.39	0.31	1.79	-0.05	2.49
	MW3	4.26	3.57	3.92	5.54	1.54	0.53	3.34	3.27								3.51	6.74	0.53	1.73	0.03	2.87
PONT	N=	2	2	2	2	1	2	3	3	1					1		19					
	MW1	3.52	3.79	4.62	4.80	4.11	3.19	4.79	3.26	1.89					3.49		3.87	6.81	1.89	1.28	0.51	2.87
	MW3	3.62	4.40	4.97	5.43	3.51	3.37	4.70	3.27	1.81					3.28		4.01	6.49	1.81	1.34	0.25	2.38
RAMB	N=	1	1	1			1	1	1								6					
	MW1	3.10	3.13	3.16			1.14	1.89	1.66								2.35	3.16	1.14	0.90	-0.22	1.34
	MW3	3.18	3.11	3.18			1.17	2.28	1.52								2.41	3.18	1.17	0.90	-0.40	1.44
STUD	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
VOLK	N=	1	1	2	1	1	1	1	1	1	1	1			1		13					
	MW1	2.39	2.65	2.26	2.73	1.45	1.69	2.03	1.97	1.15	2.33	2.68			0.46		2.01	2.73	0.46	0.69	-0.83	2.92
	MW3	2.37	2.83	2.16	2.64	1.28	1.68	1.94	2.01	1.12	2.33	2.51			0.42		1.96	2.83	0.42	0.69	-0.84	2.95
WISC	N=		1														1					
	MW1		3.43														3.43	3.43	3.43	0.0	0.0	0.0
	MW3		3.32														3.32	3.32	3.32	0.0	0.0	0.0
AV/YR	N=	15	17	21	20	15	16	20	18	5	10	4	0	2	3	3	169					
	MW1	3.75	4.33	4.21	4.44	2.74	3.13	2.87	2.71	2.64	3.59	3.04	0.0	5.22	3.34	5.27	3.56					
	MW3	3.67	4.40	4.44	4.47	2.79	3.32	2.98	2.80	2.73	3.71	2.96	0.0	5.87	3.24	5.15	3.65					
RANGE																						
MW1	HI	6.62	6.03	7.23	9.43	6.79	6.29	6.81	5.28	4.73	4.90	3.74	0.0	6.28	6.05	6.02		9.43				
MW1	LO	1.73	2.57	1.84	0.46	0.43	0.31	0.84	1.00	1.15	2.33	2.61	0.0	4.15	0.46	3.92			0.31			
MW3	HI	6.46	6.17	7.40	8.67	6.89	6.43	6.42	5.41	5.45	4.92	3.66	0.0	7.64	6.13	5.95		8.67				
MW3	LO	1.56	2.55	1.91	0.48	0.41	0.53	0.95	0.99	1.12	2.33	2.33	0.0	4.09	0.42	3.71			0.41			
S.D./YR																						
MW1		1.29	1.10	1.37	2.02	1.64	1.49	1.54	1.13	1.48	0.75	0.52	0.0	1.51	2.80	1.17				1.58		
MW3		1.23	1.04	1.30	1.98	1.62	1.58	1.41	1.21	1.77	0.80	0.64	0.0	2.51	2.86	1.25				1.59		
SKEWNESS																						
MW1	G1	3.42	0.03	0.48	0.40	0.86	0.23	1.25	0.56	0.51	0.32	0.63	0.0	0.00	-0.10	-0.69					0.48	
MW1	G2	3.00	1.95	3.11	3.37	3.59	3.09	3.79	2.91	1.69	2.59	1.81	0.0	1.01	1.51	1.51						3.33
MW3	G1	0.33	-0.09	0.25	-0.01	0.97	0.36	0.96	0.52	0.76	-0.24	0.09	0.0	0.00	0.00	-0.69					0.35	
MW3	G2	3.20	2.22	3.13	2.48	3.86	3.07	3.28	2.74	2.08	2.29	1.21	0.0	1.01	1.51	1.51						2.86

SUMMARY OF EXHAUST EMISSION VALUES FOR HOUSTON

HYDROCARBONS IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1	1	2	1	1	1	1	1			1				11					
	MW1	3.06	4.65	5.30	10.83	8.11	6.10	16.59	12.30	7.89			7.81				8.47	16.59	3.06	4.11	0.69	2.59
	MW3	2.72	4.10	4.67	8.78	6.93	5.74	16.73	11.60	7.31			7.31				7.70	16.73	2.72	4.00	1.03	3.39
CADI	N=				1			1									2					
	MW1				5.78			5.10									5.45	5.78	5.10	0.49	-0.00	1.20
	MW3				5.47			5.09									5.29	5.47	5.09	0.27	-0.03	1.98
CHEV	N=	7	4	4	4	3	4	4	4	4	1	1	1	2	1	1	45					
	MW1	3.12	4.91	5.70	10.53	7.85	6.90	10.94	8.48	9.24	7.99	11.09	4.20	15.01	6.41	5.12	7.50	19.87	1.81	4.07	1.39	5.33
	MW3	2.93	4.26	5.14	9.71	6.96	5.97	9.39	8.00	8.40	5.54	10.30	3.94	13.15	6.28	4.72	6.72	19.10	1.70	3.64	1.41	5.54
CHRY	N=			1												1	2					
	MW1			5.32												6.51	5.92	6.51	5.32	0.85	0.00	1.03
	MW3			5.06												5.39	5.23	5.39	5.06	0.24	0.00	2.80
DODG	N=	1	1	1	1	1	1	1	1								8					
	MW1	3.23	6.67	5.78	9.52	12.02	4.41	4.34	7.02								6.63	12.02	3.23	2.93	0.73	2.45
	MW3	2.72	5.68	5.41	8.66	9.94	3.81	3.93	5.84								5.75	9.94	2.72	2.47	0.59	2.18
FORD	N=	5	3	4	3	3	4	4	2	4	1	1		2	1	1	38					
	MW1	4.49	4.53	5.05	6.38	5.26	16.86	9.77	8.39	12.99	8.81	7.10		7.49	5.22	5.32	8.11	46.68	2.73	7.36	4.08	21.37
	MW3	4.18	4.26	4.68	5.22	4.95	15.01	9.49	7.74	11.85	7.54	6.41		7.03	4.11	4.73	7.39	40.48	2.45	6.51	3.76	19.06
IMPE	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=		1				1										2					
	MW1		5.46				7.40										6.43	7.40	5.46	1.38	0.90	1.02
	MW3		4.55				6.54										5.55	6.54	4.55	1.41	0.00	1.01
MERC	N=	2	1		1				1								5					
	MW1	3.73	2.95		4.24				10.23								4.98	10.23	2.95	2.98	1.40	3.12
	MW3	3.52	3.01		4.13				9.73								4.79	9.73	3.01	2.80	1.41	3.13
OLDS	N=	1	3	1	2		2	1	1								11					
	MW1	2.29	3.73	5.02	3.79		7.35	7.40	12.05								5.48	12.05	2.29	2.90	0.97	3.37
	MW3	2.28	3.32	4.44	3.38		6.71	6.96	11.02								4.99	11.02	2.28	2.67	1.01	3.31
PLYM	N=	1	1	2	2	1	1	1		1	1						11					
	MW1	6.37	4.03	19.83	11.13	5.61	3.80	6.05		13.27	4.36						9.56	33.45	3.80	9.16	1.85	5.28
	MW3	5.12	4.02	17.95	10.30	5.21	4.40	5.50		11.95	3.64						8.80	31.14	3.32	8.55	1.88	5.32
PONT	N=	2	1	2	2	1	1	2	1		1						13					
	MW1	3.62	4.61	4.59	34.46	13.37	8.60	4.85	6.48		4.53						10.28	64.68	2.79	16.57	3.04	10.52
	MW3	3.15	4.12	4.00	34.43	12.34	7.19	5.13	4.06		4.32						9.81	64.71	2.33	16.68	3.07	10.62
RAMB	N=								1	1	1						3					
	MW1								5.63	5.86	5.90						5.80	5.90	5.63	0.15	-0.44	15.67
	MW3								5.56	5.52	5.50						5.53	5.56	5.50	0.04	9.00	6189.28
STUD	N=													1			1					
	MW1													5.45			5.45	5.45	5.45	0.0	0.0	0.0
	MW3													4.77			4.77	4.77	4.77	0.0	0.0	0.0
VOLK	N=		1	2	1	2	2	1	1	1	1						12					
	MW1		2.21	2.91	3.14	4.68	8.77	8.52	4.55	8.13	31.96						7.61	31.96	1.88	8.15	2.45	7.99
	MW3		2.07	2.84	2.96	4.03	8.18	7.92	4.00	6.62	29.77						6.96	29.77	2.03	7.61	2.48	8.10
MISC	N=	2	1	1	1												5					
	MW1	1.86	2.25	4.49	1.94												2.49	4.49	1.55	1.16	1.29	3.00
	MW3	1.67	1.88	4.03	1.77												2.31	4.53	1.38	1.27	1.38	3.11
AV/YR	N=	22	18	19	20	12	17	16	13	12	6	2	2	5	2	3	169					
	MW1	3.54	4.30	6.49	10.36	7.32	9.28	8.79	8.39	10.35	10.56	9.10	6.01	10.10	5.82	5.65	7.56					
	MW3	3.23	3.95	5.95	9.57	6.52	8.35	8.25	7.90	9.37	9.39	8.36	5.63	9.02	5.20	4.95	6.90					
RANGE																						
	MW1 HI	10.13	6.67	33.45	54.68	13.37	46.44	17.88	12.30	22.01	31.96	11.09	7.81	19.87	6.41	6.51		64.68				
	MW1 LO	1.55	2.21	1.88	1.94	3.67	3.40	4.17	4.55	5.86	4.36	7.10	4.20	5.07	5.22	5.12			1.55			
	MW3 HI	10.27	5.68	31.14	64.71	12.34	40.46	16.73	11.60	19.83	29.77	10.30	7.31	16.46	6.28	5.39		64.71				
	MW3 LO	1.38	1.84	2.03	1.77	2.87	3.81	3.93	4.00	5.52	3.64	6.41	3.94	4.77	4.11	4.72			1.38			
S.D./YR																						
	MW1	1.67	1.30	6.66	13.65	3.20	9.79	3.94	2.76	4.20	10.05	2.82	2.56	5.97	0.85	0.75				7.06		
	MW3	1.97	1.12	6.22	18.76	2.41	9.42	3.78	2.60	3.84	10.09	2.75	2.39	4.91	1.54	0.39				6.70		
SKEWNESS																						
	MW1 G1	2.20	3.07	3.76	3.36	0.68	3.57	1.06	0.09	1.91	1.67	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					4.85	
	MW1 G2	6.20	2.20	15.43	13.47	2.17	14.22	3.37	1.45	6.14	3.93	1.00	1.01	2.53	1.03	1.53						33.74
	MW3 G1	2.59	-0.03	3.74	3.46	0.73	3.57	1.11	0.11	1.79	1.73	0.00	0.20	2.87	0.01	0.71					5.23	
	MW3 G2	10.29	2.30	15.90	14.36	2.57	14.18	3.05	1.43	5.67	4.08	1.00	1.02	2.45	1.01	1.54						49.22

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR HOUSTON

CARBON MONOXIDE IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1	1	2	1	1	1	1	1			1				11					
	MW1	86.27	97.60	88.32	198.98	138.63	119.44	159.91	150.15	89.31			74.73				127.49	219.67	74.73	46.05	0.65	2.36
	MW3	75.78	79.39	79.83	167.41	124.59	121.03	172.17	147.48	82.98			74.39				117.50	183.23	74.39	41.35	0.32	1.58
CADI	N=				1			1									2					
	MW1				130.57			71.38									100.98	130.57	71.38	41.86	0.00	1.01
	MW3				125.59			69.85									97.72	125.59	69.85	39.42	0.00	1.01
CHEV	N=	7	4	4	4	3	4	4	4	4	1	1	1	2	1	1	45					
	MW1	45.90	84.89	70.60	115.52	160.44	99.32	150.86	96.33	111.47	51.94	182.07	80.10	91.58	104.83	70.33	97.58	312.98	27.13	58.29	1.49	5.92
	MW3	45.11	76.64	64.01	107.51	150.93	86.93	132.41	94.07	111.13	43.16	180.42	77.30	86.47	102.36	68.01	91.19	307.04	25.12	55.83	1.65	6.67
CHRY	N=			1												1	2					
	MW1			102.60												144.26	123.44	144.26	102.60	29.46	0.00	1.01
	MW3			101.09												124.63	112.87	124.63	101.09	16.65	0.01	1.02
DODG	N=	1	1	1	1	1	1	1	1								8					
	MW1	69.70	89.36	119.93	194.17	193.36	49.98	89.13	107.41								114.14	194.17	49.98	53.58	0.63	2.03
	MW3	59.46	91.32	122.88	190.57	159.53	38.93	88.09	99.33								106.27	190.57	38.93	50.07	0.42	2.19
FORD	N=	5	3	4	1	3	4	4	2	4	1	1		2	1	1	38					
	MW1	34.55	67.28	54.70	72.08	61.34	106.18	94.22	107.39	106.67	83.71	81.42		90.04	75.04	92.71	77.63	135.54	9.70	33.39	-0.22	2.16
	MW3	28.97	64.54	47.83	61.28	58.48	104.36	88.67	102.66	99.89	67.29	79.74		82.94	57.12	86.95	71.66	130.95	8.67	32.90	-0.16	1.99
IMPE	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=		1				1										2					
	MW1		111.15				125.35										118.26	125.35	111.15	10.05	0.00	1.01
	MW3		90.36				105.54										97.96	105.54	90.36	10.74	0.00	1.24
MERC	N=	2	1		1				1								5					
	MW1	36.78	49.17		46.96				84.70								50.88	84.70	35.52	19.77	1.20	2.85
	MW3	33.48	49.32		44.12				76.42								47.37	76.42	32.70	17.65	0.98	2.55
OLDS	N=	1	3	1	2		2	1	1								11					
	MW1	23.89	61.31	66.18	42.52		85.16	79.75	121.71								66.44	121.71	19.25	31.63	0.01	2.27
	MW3	19.51	51.82	57.16	34.44		68.25	78.09	113.54								57.20	113.54	15.79	28.65	0.19	2.66
PLYM	N=	1	1	2	2	1	1	1		1	1						11					
	MW1	87.57	45.10	119.64	155.15	83.07	113.98	71.06		120.14	102.82						106.67	243.49	45.10	61.02	1.21	3.45
	MW3	72.20	48.76	112.03	153.32	77.93	97.90	68.15		116.17	89.32						100.11	248.40	36.96	63.73	1.38	3.80
PONT	N=	2	1	2	2	1	1	2	1		1						13					
	MW1	41.39	87.61	77.17	214.72	131.76	112.10	49.74	106.45		55.77						96.91	331.51	30.22	76.69	2.35	8.03
	MW3	34.65	81.26	64.62	197.73	129.03	101.53	52.93	103.73		54.27						89.98	317.25	22.39	74.15	2.36	8.08
RAMB	N=								1	1	1						3					
	MW1								87.31	105.44	69.60						87.45	105.44	69.60	17.93	0.02	1.51
	MW3								84.24	102.48	69.92						85.55	102.48	69.92	16.33	0.15	1.51
STUD	N=													1			1					
	MW1													94.67			94.67	94.67	94.67	0.0	0.0	0.0
	MW3													86.07			86.07	86.07	86.07	0.0	0.0	0.0
VOLK	N=		1	2	1	2	2	1	1	1	1						12					
	MW1		29.00	41.25	31.63	68.01	88.47	70.05	51.97	85.18	61.72						60.42	100.87	22.56	24.10	-0.09	2.08
	MW3		27.17	38.12	29.25	59.20	84.74	71.06	47.63	79.92	58.27						56.46	96.07	21.90	23.10	-0.00	1.99
NISC	N=	2	1	1	1												5					
	MW1	22.89	31.35	47.57	34.22												31.79	47.57	21.17	10.24	0.63	2.21
	MW3	18.71	23.60	42.79	34.49												27.67	42.79	16.62	10.74	0.47	1.70
AV/YR	N=	22	18	19	20	12	17	16	13	12	6	2	2	5	2	3	169					
	MW1	43.81	70.32	73.79	116.93	112.35	99.42	101.32	100.76	106.06	70.93	131.75	77.42	91.59	89.94	102.44	88.77					
	MW3	39.15	63.72	67.41	107.19	103.15	90.36	96.10	96.46	102.14	63.71	130.09	75.85	84.98	79.74	93.20	82.14					
RANGE																						
	MW1 HI	87.57	118.81	191.58	331.51	312.98	128.98	237.84	150.15	132.96	102.82	182.07	80.10	145.44	106.83	144.26		331.51				
	MW1 LO	9.70	29.00	22.56	19.25	27.23	49.98	33.79	49.33	85.18	51.94	81.42	74.73	37.72	75.04	70.33			9.70			
	MW3 HI	81.72	104.99	187.10	317.25	307.04	126.32	214.76	147.48	130.95	89.32	180.42	77.30	142.43	102.36	124.63		317.25				
	MW3 LO	8.67	23.60	21.90	15.79	25.12	39.93	33.58	47.63	79.92	43.16	79.74	74.39	30.51	57.12	68.01			8.67			
S.D./YR																						
	MW1	24.08	28.73	36.95	87.44	80.13	21.36	52.18	30.32	16.49	19.28	71.18	3.80	38.18	21.07	37.92				51.10		
	MW3	22.04	25.95	37.84	84.78	76.68	22.79	46.67	30.04	15.33	15.41	71.19	2.06	39.66	32.00	28.83				49.15		
SKEWNESS																						
	MW1 G1	0.68	0.02	1.77	0.44	1.33	-0.65	1.09	-0.18	0.30	0.72	0.00	0.02	0.30	0.00	0.45					1.96	
	MW1 G2	2.10	1.73	6.54	2.80	4.27	2.84	3.99	2.34	1.72	2.19	1.01	-0.93	2.48	1.01	1.51						7.59
	MW3 G1	0.61	-0.19	1.85	0.97	1.59	-0.41	1.13	-0.10	0.35	0.42	0.00	0.49	0.13	0.01	0.38					1.76	
	MW3 G2	2.06	1.74	6.39	2.98	5.22	2.77	3.94	2.25	2.26	2.39	1.00	-32.30	2.49	1.01	1.51						8.16

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR HOUSTON

CARBON DIOXIDE IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1	1	2	1	1	1	1	1			1				11					
	MW1	821.32	730.87	709.08	573.59	470.49	384.87	557.35	519.37	559.10			643.29				594.82	821.32	384.87	130.96	0.14	2.09
	MW3	721.60	687.61	692.69	576.69	450.60	340.73	558.57	496.78	534.58			610.99				567.96	721.60	340.73	120.98	-0.36	2.10
CADI	N=				1			1									2					
	MW1				796.44			722.82									759.63	796.44	722.82	52.06	0.02	0.15
	MW3				735.24			689.26									712.25	735.24	689.26	32.52	-0.04	-1.64
CHEV	N=	7	4	4	4	3	4	4	4	4	1	1	1	2	1	1	45					
	MW1	777.96	616.93	557.20	622.42	467.73	488.83	515.23	481.15	545.24	339.21	409.72	527.38	464.77	536.70	424.95	563.08	1555.26	339.21	191.25	3.31	17.45
	MW3	782.44	612.41	527.36	608.70	452.98	468.21	582.66	463.77	487.25	331.41	389.92	509.29	439.99	510.09	405.97	552.54	1830.23	331.41	223.74	4.25	24.90
CHRY	N=			1												1	2					
	MW1			774.14												695.87	735.01	774.14	695.87	55.36	0.00	0.68
	MW3			766.98												651.43	709.21	766.98	651.43	81.72	0.00	0.95
DODG	N=	1	1	1	1	1	1	1	1								8					
	MW1	502.76	713.13	571.52	451.55	448.74	670.39	488.47	263.89								513.81	713.13	263.89	140.88	-0.22	2.54
	MW3	477.80	694.41	542.23	424.51	456.28	652.24	419.19	250.38								489.63	694.41	250.38	140.84	-0.07	2.40
FORD	N=	5	3	4	3	3	4	4	2	4	1	1		2	1	1	38					
	MW1	531.53	621.35	537.00	567.27	596.02	443.72	445.21	432.95	501.75	787.30	308.18		420.46	612.85	481.32	516.30	787.30	238.18	144.75	0.14	2.11
	MW3	513.25	597.62	513.09	569.66	566.99	424.45	429.52	421.54	488.70	732.52	294.99		423.71	591.16	465.32	499.07	772.03	225.37	137.69	0.11	2.25
IMPE	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=		1				1										2					
	MW1		786.89				736.77										761.83	786.89	736.77	35.45	0.00	1.83
	MW3		758.29				703.84										731.07	758.29	703.84	38.50	0.03	-0.47
MERC	N=	2	1		1				1								5					
	MW1	808.10	741.98		631.19				474.90								692.86	961.44	474.90	146.61	-0.48	2.10
	MW3	761.24	711.11		681.63				453.94								681.84	842.45	453.94	141.47	-0.75	2.63
OLDS	N=	1	3	1	2		2	1	1								11					
	MW1	842.94	820.40	702.58	696.05		580.87	470.86	579.33								695.53	963.65	470.86	151.41	0.31	2.07
	MW3	729.21	789.40	666.57	665.88		564.96	462.53	562.60								659.17	941.11	462.53	132.45	0.61	2.97
PLYM	N=	1	1	2	2	1	1	1		1	1						11					
	MW1	739.13	436.20	535.77	537.39	381.61	479.46	576.36		486.08	427.43						515.88	739.13	381.61	99.64	0.68	3.35
	MW3	702.39	436.15	533.56	513.20	378.35	469.84	565.13		469.44	417.62						500.04	702.39	378.35	96.62	0.77	2.77
PONT	N=	2	1	2	2	1	1	2	1		1						13					
	MW1	659.38	682.13	630.49	519.11	498.21	494.90	448.04	616.93		442.40						557.59	744.33	387.45	110.45	0.39	2.11
	MW3	562.40	653.05	597.81	503.41	464.56	469.35	496.46	589.12		484.09						536.49	698.14	426.66	97.35	0.59	1.94
RAMB	N=								1	1	1						3					
	MW1								338.15	360.89	357.85						352.30	360.89	338.15	12.35	-0.67	-1.98
	MW3								322.03	347.13	344.22						337.80	347.13	322.03	13.73	-0.70	2.34
STUD	N=													1			1					
	MW1													419.50			419.50	419.50	419.50	0.0	0.0	0.0
	MW3													402.08			402.08	402.08	402.08	0.0	0.0	0.0
VOLK	N=		1	2	1	2	2	1	1	1	1						12					
	MW1		279.24	391.47	318.44	302.59	247.87	265.35	244.01	296.65	130.96						284.88	473.88	130.96	78.20	0.59	4.91
	MW3		274.64	370.64	309.61	298.29	261.60	253.64	242.73	291.35	123.77						279.90	439.01	123.77	70.68	0.06	4.95
MISC	N=	2	1	1	1												5					
	MW1	343.92	353.31	405.01	396.32												368.50	405.01	330.29	31.30	0.09	1.53
	MW3	339.20	344.42	391.84	377.33												358.40	391.84	329.80	25.42	0.29	1.49
AV/YR	N=	22	18	19	20	12	17	16	13	12	6	2	2	5	2	3	169					
	MW1	667.57	639.43	560.77	571.89	466.29	479.66	488.82	448.24	490.89	414.20	358.96	585.34	438.80	576.78	534.22	537.87					
	MW3	638.19	618.80	538.22	554.22	450.53	462.34	499.34	431.98	462.20	405.61	342.41	560.14	429.90	550.63	507.58	523.71					
RANGE																						
	MW1 HI	1555.26	963.65	774.14	805.02	736.11	736.77	727.39	616.93	766.53	787.30	409.72	643.29	558.79	612.85	695.87		1555.26				
	MW1 LO	294.10	279.24	309.07	318.44	298.92	231.43	253.14	244.01	296.65	130.96	308.18	527.38	333.34	536.70	424.95			130.96			
	MW3 HI	1830.23	941.11	766.99	772.03	692.89	703.84	747.66	539.12	644.91	732.52	342.42	610.99	526.48	591.16	651.43		1830.23				
	MW3 LO	236.07	274.64	294.27	309.61	269.21	255.21	225.37	242.73	291.35	123.77	294.99	509.29	353.50	510.09	405.97			123.77			
S.D./YR																						
	MW1	269.55	170.05	130.35	136.98	121.35	133.87	137.46	117.54	115.57	214.10	71.40	81.96	85.27	53.85	142.46				174.74		
	MW3	311.36	164.62	124.63	134.94	109.61	125.76	146.97	113.10	93.74	233.94	67.23	71.97	69.74	57.43	124.27				178.25		
SKEWNESS																						
	MW1 G1	1.48	-0.53	-0.25	0.33	0.64	-0.06	-0.07	-0.41	0.71	0.89	0.30	0.35	0.44	0.71	0.59					1.76	
	MW1 G2	6.49	2.92	2.34	2.27	3.28	2.54	2.64	2.07	4.15	2.45	1.91	1.95	1.73	2.62	1.93						8.63
	MW3 G1	2.53	-0.50	-0.24	-0.06	0.40	0.08	-0.17	-0.39	0.03	0.16	0.02	0.01	0.65	0.00	0.95					2.36	
	MW3 G2	10.95	2.96	2.45	2.02	3.29	2.39	2.44	2.01	2.45	2.63	1.73	1.95	1.82	2.40	1.91						13.63

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR HOUSTON

CORRECTED OXIDES OF NITROGEN IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1	1	2	1	1	1	1	1			1				11					
	MW1	2.41	5.92	8.45	1.94	1.88	2.74	3.26	4.71	5.86			5.41				4.05	8.45	1.88	2.17	0.67	2.36
	MW3	2.77	5.73	8.96	2.53	1.71	2.43	2.91	4.07	5.33			5.10				4.01	8.96	1.71	2.13	1.14	3.56
CADI	N=				1			1									2					
	MW1				5.13			7.72									6.43	7.72	5.13	1.84	0.00	1.01
	MW3				4.17			7.96									6.07	7.96	4.17	2.69	0.00	1.01
CHEV	N=	7	4	4	4	3	4	4	4	4	1	1	1	2	1	1	45					
	MW1	4.69	4.80	5.80	3.20	3.85	4.31	3.01	4.98	3.53	1.47	1.26	3.07	4.08	1.81	1.64	4.01	8.24	0.90	1.89	0.37	2.32
	MW3	4.51	5.08	5.67	3.34	3.87	4.44	3.30	4.90	3.13	1.54	1.10	2.77	3.82	1.69	1.58	3.96	8.38	0.87	1.90	0.34	2.26
CHRY	N=			1												1	2					
	MW1			4.21												2.49	3.35	4.21	2.49	1.22	0.01	1.00
	MW3			4.26												2.65	3.46	4.26	2.65	1.14	0.01	1.01
DODG	N=	1	1	1	1	1	1	1	1								8					
	MW1	6.96	3.75	3.15	1.42	1.34	9.94	5.94	0.77								4.16	9.94	0.77	3.22	0.64	2.19
	MW3	6.82	3.90	2.73	1.14	1.85	10.40	4.96	1.09								4.12	10.40	1.09	3.23	0.92	2.75
FORD	N=	5	3	4	3	3	4	4	2	4	1	1		2	1	1	38					
	MW1	5.41	6.35	6.67	4.25	3.24	3.52	3.47	4.37	5.05	2.[illegible]	1.70		4.35	3.38	4.35	4.56	9.50	1.09	2.02	0.76	2.91
	MW3	5.28	6.39	6.85	4.93	3.15	3.30	3.42	4.33	5.06	2.6[illegible]	1.56		4.56	3.51	4.17	4.58	9.52	0.98	2.03	0.58	2.62
IMPE	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=		1				1										2					
	MW1		6.79				4.27										5.54	6.79	4.27	1.79	0.00	1.01
	MW3		7.46				4.29										5.88	7.46	4.29	2.25	0.00	1.01
MERC	N=	2	1		1				1								5					
	MW1	8.28	2.77		8.73				4.25								6.46	8.99	2.77	2.80	-0.40	1.43
	MW3	8.27	3.13		8.81				4.25								6.55	8.81	3.13	2.68	-0.40	1.34
OLDS	N=	1	3	1	2		2	1	1								11					
	MW1	6.37	4.25	7.12	4.75		4.48	5.00	6.79								5.14	7.12	2.81	1.31	-0.08	2.21
	MW3	6.57	4.31	7.21	4.78		4.89	4.92	6.81								5.26	7.21	2.79	1.29	-0.17	2.51
PLYM	N=	1	1	2	2	1	1	1		1	1						11					
	MW1	8.61	4.81	5.46	3.75	5.08	3.02	3.63		5.11	3.52						4.75	8.61	2.64	1.63	1.00	4.04
	MW3	8.60	4.23	6.13	3.77	5.31	3.49	3.87		4.88	3.75						4.91	8.60	2.48	1.70	0.83	3.27
PONT	N=	2	1	2	2	1	1	2	1		1						13					
	MW1	4.70	3.41	4.62	1.96	3.51	2.27	3.27	5.68		6.45						3.88	6.62	0.95	1.72	0.29	2.15
	MW3	4.84	3.45	4.96	1.96	3.40	2.23	3.65	5.23		6.66						3.99	7.09	0.83	1.77	0.27	2.49
RAMB	N=								1	1	1						3					
	MW1								3.24	2.56	3.75						3.18	3.75	2.56	0.60	-0.17	1.51
	MW3								3.17	2.32	3.42						2.97	3.42	2.32	0.58	-0.55	1.51
STUD	N=													1			1					
	MW1													6.35			6.35	6.35	6.35	0.0	0.0	0.0
	MW3													5.79			5.79	5.79	5.79	0.0	0.0	0.0
VOLK	N=		1	2	1	2	2	1	1	1	1						12					
	MW1		3.04	5.58	3.39	2.41	1.85	3.17	1.77	2.26	0.54						2.83	7.93	0.54	1.86	1.72	5.99
	MW3		2.83	5.37	3.17	2.30	1.65	2.85	1.85	2.22	0.48						2.67	7.86	0.48	1.83	1.95	6.70
MISC	N=	2	1	1	1												5					
	MW1	4.61	7.03	8.05	6.31												6.07	8.05	3.74	1.63	-0.24	2.03
	MW3	4.96	7.36	8.25	5.92												6.30	8.25	3.85	1.67	-0.34	2.09
AV/YR	N=	22	18	19	20	12	17	16	13	12	6	2	2	5	2	3	169					
	MW1	5.43	4.92	5.91	3.76	3.17	3.90	3.83	4.30	4.18	3.07	1.49	4.25	4.64	2.60	2.83	4.34					
	MW3	5.41	5.03	6.03	3.88	3.17	3.94	3.78	4.22	3.96	3.09	1.33	3.94	4.51	2.61	2.80	4.35					
RANGE																						
	MW1 HI	8.99	8.05	9.50	8.73	5.46	9.94	7.72	8.24	9.06	6.45	1.70	5.41	6.69	3.38	4.35		9.94				
	MW1 LO	2.26	2.77	2.62	0.95	1.34	1.68	0.90	0.77	2.26	0.54	1.26	3.07	1.46	1.81	1.64			0.54			
	MW3 HI	8.77	8.20	9.52	8.81	5.50	10.40	7.96	8.38	8.14	6.66	1.56	5.10	6.37	3.51	4.17		10.40				
	MW3 LO	2.23	2.79	2.73	0.83	1.46	1.68	0.87	1.09	2.14	0.48	1.10	2.77	1.20	1.69	1.58			0.48			
S.D./YR																						
	MW1	2.07	1.67	1.95	1.96	1.37	2.65	1.67	2.08	1.99	2.76	0.32	1.66	2.11	1.11	1.39				2.04		
	MW3	1.99	1.77	2.06	2.30	1.33	2.22	1.67	2.03	1.98	2.13	0.33	1.65	2.06	1.29	1.31				2.08		
SKEWNESS																						
	MW1 G1	0.30	0.34	0.22	0.71	0.20	1.66	0.37	0.17	1.26	0.48	0.03	0.01	-0.56	0.00	-0.[illegible]					0.51	
	MW1 G2	1.43	1.85	2.06	3.17	1.98	5.56	3.55	2.43	3.93	2.34	1.01	1.01	2.07	1.01	-0.[illegible]						3.65
	MW3 G1	-0.01	0.39	-0.12	0.62	0.50	1.55	0.44	0.47	1.06	0.36	0.00	0.21	-0.67	0.00	0.21					0.52	
	MW3 G2	1.37	1.77	2.01	3.14	2.19	5.32	4.11	2.62	3.35	2.51	1.01	1.00	2.23	1.01	1.60						2.67

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR ST LOUIS

HYDROCARBONS IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1	1		2	2	1	1			1					10					
	MW1	4.56	5.24	8.52		5.49	9.16	11.90	12.41			9.91					8.19	13.40	4.38	3.52	0.29	1.48
	MW3	3.49	4.92	7.56		4.69	8.43	11.72	11.42			9.09					7.45	12.74	3.49	3.57	0.33	1.50
CADI	N=	1				1			1								3					
	MW1	2.18				9.11			5.04								5.45	9.11	2.18	3.49	0.22	1.51
	MW3	1.68				7.40			4.75								4.61	7.40	1.68	2.87	-0.09	1.51
CHEV	N=	5	4	4	3	3	3	3	1	4	2	2	1	1	1	2	41					
	MW1	2.94	5.00	6.75	6.23	10.88	13.08	17.79	11.79	9.88	10.03	3.77	6.91	37.85	5.68	5.58	9.02	37.85	2.19	7.04	2.37	9.48
	MW3	2.70	4.30	5.89	5.31	9.77	11.50	16.68	10.41	9.98	9.50	3.32	6.12	36.51	4.84	5.13	8.26	36.51	1.86	6.81	2.41	9.67
CHAV	N=		1		1		1			1							4					
	MW1		4.11		3.99		9.46			9.28							6.72	9.46	3.99	3.08	0.01	1.01
	MW3		3.68		3.75		8.22			6.93							5.65	8.22	3.68	2.30	0.16	1.21
DODG	N=	1	1		2	1	2		1	2	1			1			12					
	MW1	3.07	3.41		6.14	6.84	5.61		11.98	8.95	9.30			28.57			8.72	28.57	3.07	6.85	2.18	7.16
	MW3	2.55	3.00		4.75	5.70	4.66		11.14	7.93	8.98			26.94			7.75	26.94	2.55	6.60	2.22	7.24
FORD	N=	5	3	3	3	1	4	3	2	3	2	1	2	2		1	35					
	MW1	4.32	3.72	3.79	3.41	5.89	6.24	5.95	7.06	9.82	23.77	3.58	14.02	8.00		6.37	7.10	26.69	2.76	5.50	2.25	7.40
	MW3	3.69	3.30	3.42	3.05	4.99	5.32	5.35	6.25	9.16	23.16	3.38	12.66	7.76		6.33	6.49	27.11	2.53	5.38	2.44	8.56
IMPE	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
MERC	N=	1	1	1	1	1	1	1	1			1	1				10					
	MW1	3.98	6.51	5.36	4.17	5.66	10.70	4.47	12.12			3.31	2.25				5.86	12.12	2.25	3.19	1.03	2.81
	MW3	3.36	5.10	4.67	3.97	5.16	9.29	3.94	11.30			3.11	2.17				5.21	11.30	2.17	2.88	1.22	3.23
OLDS	N=	2	1	2	1	1	2	1		1	1	1					13					
	MW1	3.32	3.10	5.98	10.98	4.80	21.41	9.69		18.15	7.61	3.80					9.20	27.26	3.10	7.28	1.32	3.88
	MW3	3.02	2.84	5.17	10.51	4.32	17.23	9.92		18.82	7.20	3.44					8.30	18.91	2.84	6.02	0.81	2.18
PLYM	N=	1	1	1		1	1	1	1	1			1				9					
	MW1	4.50	4.86	5.51		12.71	7.85	7.25	7.15	4.88			12.83				7.51	12.83	4.50	3.22	0.89	2.29
	MW3	3.60	3.99	5.18		11.46	6.92	6.80	5.40	4.63			11.94				6.66	11.94	3.60	3.07	0.91	2.34
PONT	N=	2	1	2	3	1	1	2		1	1						14					
	MW1	5.02	4.48	6.43	5.08	7.56	10.76	7.68		4.98	4.95						6.16	10.76	4.48	2.25	1.27	3.03
	MW3	4.18	4.13	5.25	4.43	7.13	9.79	7.30		4.76	4.58						5.52	10.22	3.89	2.14	1.40	3.48
RAMB	N=	2	2		1		1				1						7					
	MW1	2.50	10.02		4.76		3.31				4.48						5.37	16.79	2.42	5.12	1.92	4.90
	MW3	2.27	9.34		4.22		2.91				3.99						4.91	15.76	2.24	4.85	1.94	4.94
STUD	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
VOLK	N=	1	1	2	1	2		1			1			1		1	11					
	MW1	5.58	2.80	4.27	6.60	4.70		7.52			5.60			15.78		7.59	6.31	15.78	2.80	3.47	1.97	6.29
	MW3	5.29	2.50	4.19	5.80	4.51		7.18			5.42			14.36		7.63	5.97	14.36	2.50	3.16	1.79	5.78
MISC	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
AV/YR	N=	22	17	16	16	14	18	13	10	13	9	6	5	5	1	4	169					
	MW1	3.73	5.05	5.70	5.44	7.55	9.93	9.81	9.92	9.56	11.06	4.70	10.01	19.65	5.68	6.28	7.62					
	MW3	3.23	4.47	5.03	4.76	6.71	8.53	9.26	8.78	9.11	10.62	4.28	9.12	18.67	4.84	6.05	6.91					
RANGE																						
	MW1 HI	7.42	16.79	10.46	10.98	14.91	27.26	29.73	19.25	18.15	26.69	9.91	20.46	37.85	5.68	7.59		37.85				
	MW1 LO	2.18	2.80	3.22	2.76	4.38	3.31	4.47	5.04	4.98	4.48	3.04	2.25	5.99	5.68	4.68			2.18			
	MW3 HI	6.19	15.76	8.96	10.51	13.66	18.91	27.83	17.03	18.82	27.11	9.09	18.79	36.51	4.84	7.63		36.51				
	MW3 LO	1.68	2.50	2.85	2.36	3.88	2.91	3.94	4.75	4.63	3.99	2.71	2.17	7.19	4.84	4.22			1.68			
S.D./YR																						
	MW1	1.31	3.20	2.16	2.02	3.26	5.79	6.63	4.21	4.26	7.67	2.61	6.95	13.23	0.0	1.20				5.52		
	MW3	1.14	3.03	1.74	1.96	2.93	4.56	6.31	3.87	4.78	7.63	2.40	6.42	12.69	0.0	1.41				5.22		
SKEWNESS																						
	MW1 G1	1.04	3.13	0.79	1.24	1.10	1.49	2.17	1.08	0.76	1.19	1.65	2.55	2.39	0.0	-0.60					2.51	
	MW1 G2	3.89	12.16	2.52	4.65	3.04	5.48	7.33	3.47	2.35	2.39	3.94	7.12	1.61	0.0	2.34						10.97
	MW3 G1	3.96	3.28	0.77	1.59	1.27	0.71	2.06	0.93	1.06	1.30	1.68	2.58	0.49	0.0	-0.29					2.58	
	MW3 G2	3.45	12.86	2.73	5.70	3.50	2.04	6.92	2.94	2.64	3.39	4.01	2.06	1.43	0.0	2.00						11.69

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR ST LOUIS

CARBON MONOXIDE IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1	1		2	2	1	1			1					10					
MW1		88.83	53.43	85.05		93.73	84.58	133.55	147.92			183.64					104.91	183.64	53.43	40.29	0.64	2.49
MW3		65.19	37.65	74.17		82.90	78.75	132.09	133.36			175.84					94.16	175.84	37.65	41.51	0.67	2.55
CADI	N=	1				1			1								3					
MW1		50.88				171.49			121.89								114.76	171.49	50.88	60.63	-0.21	1.50
MW3		47.54				151.19			114.59								104.44	151.19	47.54	52.57	-0.14	1.51
CHEV	N=	5	4	4	1	3	3	3	3	4	2	2	1	1	1	2	41					
MW1		41.42	60.10	74.32	74.41	116.99	115.83	136.72	92.41	123.43	107.39	30.02	40.88	195.99	41.54	71.13	90.45	195.99	14.05	45.37	0.51	2.66
MW3		34.63	47.90	60.04	60.44	104.01	106.59	131.25	82.62	118.33	109.00	28.34	31.55	194.34	39.98	70.26	78.40	194.34	12.53	46.25	0.54	2.75
CHRY	N=		1		1		1			1							4					
MW1			68.92		55.35		185.81			192.61							125.68	192.61	55.35	73.63	-0.01	1.03
MW3			70.38		54.95		169.74			155.65							112.68	169.74	54.95	58.38	-0.00	1.09
DODG	N=	1	1		2	1	2		1	2	1			1			12					
MW1		47.65	46.18		72.02	141.51	83.91		102.36	137.00	108.13			59.20			90.91	183.75	46.13	41.58	0.91	3.05
MW3		35.40	39.96		57.10	116.97	62.31		98.20	101.25	106.39			48.89			73.93	116.97	35.40	31.19	0.00	1.36
FORD	N=	5	3	3	3	1	4	3	2	3	2			2			35					
MW1		56.05	46.26	49.48	32.08	96.60	71.14	64.31	107.26	86.15	154.69	43.40	97.38	77.80		108.27	72.07	184.56	23.84	35.37	0.98	4.01
MW3		43.87	38.68	39.71	25.45	85.26	61.23	56.90	98.87	77.65	143.91	41.69	90.23	73.90		109.66	63.54	163.50	13.76	34.69	0.85	3.18
IMPE	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
MERC	N=	1	1	1	1	1	1	1	1			1	1				10					
MW1		61.59	115.41	53.79	28.80	99.96	105.78	104.24	266.61			46.01	21.71				90.40	266.61	21.71	70.60	1.60	5.02
MW3		50.30	86.81	42.84	27.00	78.02	84.50	97.26	249.85			40.91	20.72				77.82	249.85	20.72	66.07	1.90	5.82
OLDS	N=	2	1	2	1	1	2	2		1	1	1					13					
MW1		52.99	59.24	117.78	142.87	48.42	146.74	115.78		135.55	76.51	63.26					98.21	171.12	48.42	42.55	0.27	1.61
MW3		48.55	46.32	108.67	134.58	45.03	127.10	114.27		136.00	73.55	53.90					90.19	136.00	45.03	39.19	0.02	1.23
PLYM	N=	1	1	1		1	1	1	1	1			1				9					
MW1		50.47	73.55	95.51		112.21	114.13	99.34	78.52	54.09			145.50				91.49	145.50	50.47	30.64	0.23	2.22
MW3		33.60	65.32	91.89		102.53	100.51	96.19	68.03	51.18			140.20				83.28	140.20	33.60	32.02	0.14	2.42
PONT	N=	2	1	2	3	1	1	2		1	1						14					
MW1		81.27	58.89	87.50	57.80	88.88	89.28	88.61		84.80	80.69						77.91	131.90	39.86	25.85	0.38	2.53
MW3		65.65	52.56	68.50	44.98	84.26	82.02	84.30		84.18	77.80						67.99	129.09	31.12	26.09	0.54	3.28
RAMB	N=	2	2		1		1				1						7					
MW1		31.68	50.28		56.39		43.14				51.60						45.01	72.25	28.31	16.13	0.53	2.07
MW3		25.63	59.89		47.54		37.57				43.59						42.83	99.52	20.26	27.02	1.46	3.94
STUD	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
VOLK	N=	1	1	2	1	2		1			1			1		1	11					
MW1		38.19	46.29	40.74	95.33	66.56		82.54			60.37			35.81		67.56	62.80	95.33	35.81	20.33	0.16	1.93
MW3		84.41	41.79	38.63	91.50	64.25		78.24			56.48			35.84		66.29	60.03	91.50	35.84	19.63	0.17	1.73
MISC	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
AV/YR	N=	22	17	16	16	14	18	13	10	13	9	6	5	5	1	4	169					
MW1		54.36	58.93	73.26	63.48	102.19	100.04	101.22	120.91	114.87	100.30	66.06	80.57	89.33	41.54	79.53	83.75					
MW3		44.94	50.77	62.49	53.85	90.69	87.52	96.24	110.97	102.76	95.96	61.51	74.59	85.38	39.98	79.12	74.81					
RANGE																						
MW1 HI		136.66	115.41	145.83	142.87	171.49	185.91	177.99	266.61	192.61	184.56	133.64	145.50	195.99	41.54	138.27		266.61				
MW1 LO		28.14	23.84	31.30	24.71	48.42	43.14	45.32	78.52	46.73	51.60	14.05	21.71	35.81	41.54	49.33			14.05			
MW3 HI		92.80	99.52	134.33	134.58	151.19	169.74	162.20	249.85	179.22	163.50	175.84	140.20	194.34	39.98	109.66		249.85				
MW3 LO		14.00	13.76	21.38	21.50	45.03	35.49	39.91	68.03	51.09	43.59	12.53	20.72	35.84	39.98	48.51			12.53			
S.D./YR																						
MW1		22.96	24.34	32.77	31.42	33.49	40.05	38.96	54.96	49.67	43.61	59.76	51.45	64.93	0.0	26.19				43.12		
MW3		22.29	24.43	30.58	31.97	27.39	37.41	38.61	52.29	39.05	37.68	57.71	49.96	65.18	0.0	27.09				41.71		
SKEWNESS																						
MW1 G1		0.57	0.51	0.77	0.98	0.38	0.45	0.40	2.08	0.36	3.36	1.50	0.12	1.31	0.0	-0.06					1.76	
MW1 G2		2.64	2.36	2.72	3.56	2.57	2.67	2.27	6.23	1.81	4.04	3.75	1.52	2.44	0.0	1.43						4.42
MW3 G1		0.67	0.37	0.85	1.17	0.49	0.30	0.19	2.08	0.53	0.33	1.55	0.17	1.03	0.0	0.30					2.39	
MW3 G2		2.50	2.26	3.02	3.67	2.96	2.45	1.88	6.25	2.33	2.26	3.84	1.57	2.47	0.0	1.49						4.34

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR ST LOUIS

CARBON DIOXIDE IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1	1		2	2	1	1			1					10					
	MW1	662.16	555.61	634.08		463.91	456.88	465.65	447.62			583.70					519.04	662.16	417.04	84.63	0.55	1.89
	MW3	646.43	542.08	606.84		424.32	443.34	468.47	440.67			561.07					500.21	646.43	389.30	85.46	0.41	1.96
CADI	N=	1				1			1								3					
	MW1	837.98				561.97			554.87								644.95	837.98	541.97	167.30	0.71	1.50
	MW3	808.46				534.01			543.07								628.52	808.46	534.01	155.91	0.71	1.51
CHEV	N=	5	4	4	3	3	3	3	3	4	2	2	1	1	1	2	41					
	MW1	561.06	521.13	602.71	473.57	479.44	480.55	446.89	453.63	337.53	400.87	482.62	512.73	459.96	457.08	454.79	481.94	726.09	307.84	96.34	0.57	3.27
	MW3	528.02	506.97	588.42	463.50	467.06	479.65	447.83	447.34	325.19	381.36	465.52	498.06	436.92	441.49	444.89	468.26	707.81	303.29	94.00	0.64	3.40
CHRY	N=		1		1		1			1							4					
	MW1		544.57		523.33		492.68			643.23							548.46	643.23	482.68	68.21	0.67	2.05
	MW3		470.48		498.85		475.53			440.96							521.46	640.96	470.48	80.63	1.08	2.27
DODG	N=	1	1		2	1	2		1	2	1			1			12					
	MW1	555.47	591.86		513.21	661.64	433.75		314.39	398.16	401.75			484.91			474.94	661.64	314.39	102.19	0.10	2.38
	MW3	537.72	575.53		518.60	661.92	441.96		306.99	402.46	396.15			485.89			474.19	661.92	306.99	102.65	-0.07	2.53
FORD	N=	5	3	1	3	1	4	3	2	3	2	1	2	2		1	35					
	MW1	553.22	464.57	498.77	550.22	484.88	447.82	367.03	519.40	400.25	312.49	321.72	420.66	485.86		448.24	460.91	717.53	258.08	119.11	0.56	2.52
	MW3	532.43	452.35	486.26	541.67	473.85	416.75	361.96	505.45	397.92	306.70	315.71	435.46	469.06		433.51	448.75	706.59	247.55	117.20	0.58	2.59
IMPE	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
MERC	N=	1	1	1	1	1	1	1	1			1	1				10					
	MW1	685.94	549.56	606.62	528.34	457.72	558.24	722.64	463.44			337.90	320.90				523.43	722.64	320.90	133.04	-0.10	2.08
	MW3	668.26	543.85	590.52	513.67	445.79	560.67	692.29	449.97			325.24	320.31				511.06	692.29	320.31	127.51	-0.19	2.01
OLDS	N=	2	1	2	1	1	2	1		1	1	1					13					
	MW1	686.73	619.57	590.59	501.14	496.07	454.82	501.30		492.60	564.80	636.90					557.44	706.88	410.61	83.20	0.15	2.26
	MW3	649.36	599.85	569.59	486.63	489.48	413.48	479.52		469.46	545.51	737.11					544.04	737.11	355.07	100.93	0.16	2.67
PLYM	N=	1	1	1		1	1	1	1	1			1				9					
	MW1	580.67	626.46	536.22		489.55	448.02	540.93	410.11	372.02			398.02				486.89	626.46	372.02	85.72	0.15	1.82
	MW3	554.65	610.73	514.81		488.96	437.26	508.55	374.67	371.35			378.46				471.05	610.73	371.35	85.94	0.16	1.79
PONT	N=	2	1	2	3	1	1	2		1	1						14					
	MW1	641.80	636.58	567.66	590.03	499.01	389.34	442.37		541.15	526.50						547.60	661.73	384.65	89.45	-0.45	2.33
	MW3	622.28	614.92	547.67	573.01	482.62	382.56	428.62		521.42	517.60						531.22	643.41	371.81	96.95	-0.41	2.28
RAMB	N=	2	2		1		1				1						7					
	MW1	513.72	523.46		542.74		449.21				349.84						488.03	596.86	349.84	82.92	-0.42	2.18
	MW3	503.69	504.83		530.52		432.37				337.71						473.95	577.37	337.71	79.62	-0.47	2.31
STUD	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
VOLK	N=	1	1	2	1	2		1			1			1		1	11					
	MW1	284.67	304.90	293.13	275.03	219.03		227.89			217.18			139.66		165.08	239.89	313.17	139.66	58.93	-0.43	1.85
	MW3	278.37	299.31	291.73	276.77	211.39		231.44			211.68			144.70		162.35	237.35	314.53	144.70	58.18	-0.46	1.77
MISC	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
AV/YR	N=	22	17	16	16	14	18	13	10	13	9	6	5	5	1	4	169					
	MW1	593.90	526.73	536.68	514.91	459.65	458.35	445.00	459.02	415.10	387.43	469.25	414.60	411.26	457.08	380.73	482.21					
	MW3	561.22	508.91	521.42	505.00	446.38	444.07	435.92	446.83	407.90	376.09	478.37	413.55	401.13	441.49	371.41	469.57					
RANGE																						
	MW1	HI 837.98	636.58	695.75	717.53	661.64	584.25	722.64	554.87	643.23	564.80	606.90	512.73	561.98	457.08	477.14		837.98				
	MW1	LO 284.67	304.90	273.09	275.03	176.54	333.64	227.89	314.39	397.94	217.18	321.72	320.90	139.66	457.08	165.08			139.66			
	MW3	HI 808.46	614.92	681.85	706.59	661.92	560.67	692.29	543.07	640.96	545.51	737.11	498.06	540.89	441.49	462.27		808.46				
	MW3	LO 278.37	299.31	268.93	276.77	169.21	327.41	231.44	306.99	303.29	211.68	315.71	320.31	144.70	441.49	162.35			144.70			
S.D./YR																						
	MW1	143.12	95.80	121.25	99.14	116.43	59.70	129.45	69.72	101.03	113.21	119.53	71.85	161.47	0.0	144.95				122.17		
	MW3	143.41	93.49	115.72	95.29	117.99	65.08	119.29	70.53	102.44	110.03	137.51	67.14	153.12	0.0	140.20				119.89		
SKEWNESS																						
	MW1	G1	-0.59	-0.47	-0.89	-0.30	-1.07	0.22	0.38	-0.53	0.92	0.12	-0.17	0.12	-1.06	0.0	-1.09					-0.12	
	MW1	G2	2.54	3.19	2.85	4.19	4.38	3.12	2.96	3.12	2.92	2.14	1.54	2.03	2.76	0.0	2.30						4.27
	MW3	G1	-0.57	-0.81	-0.62	-0.71	-0.85	0.14	0.33	-0.50	0.90	0.12	0.57	-0.21	-1.04	0.0	-1.11					-0.16	
	MW3	G2	2.96	2.89	2.84	4.23	4.08	2.48	3.04	2.79	2.92	2.15	2.26	2.00	2.71	0.0	2.31						3.93

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR ST LOUIS

CORRECTED OXIDES OF NITROGEN IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1	1		2	2	1	1			1					10					
MW1		3.35	3.54	7.92		3.79	4.30	2.54	2.01			0.96					3.66	7.92	0.96	1.97	0.92	3.38
MW3		3.53	3.82	8.37		3.16	4.29	2.55	2.17			0.89					3.63	8.37	0.89	2.10	1.11	3.76
CADI	N=	1				1			1								3					
MW1		3.06				1.69			2.34								2.37	3.06	1.69	0.69	0.93	1.50
MW3		2.78				1.75			2.32								2.29	2.78	1.75	0.52	-0.12	1.50
CHEV	N=	5	4	4	3	3	3	3	3	4	2	2	1	1	1	2	41					
MW1		4.76	4.88	5.00	3.81	3.00	2.94	2.59	2.83	1.89	2.03	5.38	2.83	0.77	2.99	2.74	3.55	7.31	0.66	1.53	0.45	2.95
MW3		4.81	5.05	5.19	3.89	3.24	2.99	2.77	2.85	1.84	2.67	5.26	2.93	0.69	3.03	2.75	3.60	7.37	0.64	1.57	0.42	2.90
CHRY	N=		1		1		1			1							4					
MW1			4.87		4.39		1.12			1.06							2.87	4.87	1.06	2.06	0.03	1.34
MW3			4.93		4.23		1.17			1.13							2.87	4.93	1.13	2.01	0.07	1.09
DODG	N=	1	1		2	1	2		1	2	1			1			12					
MW1		3.87	3.60		3.93	1.18	3.42		2.42	1.46	1.07			6.67			3.04	6.67	1.07	1.69	0.68	2.81
MW3		3.86	3.54		4.41	1.36	4.12		2.51	1.81	1.00			7.19			3.35	7.19	1.00	1.85	0.58	2.72
FORD	N=	5	3	3	3	1	4	3	2	3	2	1	2	2		1	35					
MW1		6.27	4.99	6.05	4.10	3.60	3.06	3.39	3.21	2.76	1.65	3.58	3.61	5.13		4.18	4.18	7.23	1.29	1.58	0.13	1.99
MW3		6.42	5.08	6.36	4.17	3.99	2.99	3.47	3.21	3.09	1.81	3.43	3.76	4.92		3.86	4.27	6.99	1.64	1.58	0.17	1.87
IMPE	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
MERC	N=	1	1	1	1	1	1	1	1			1	1				10					
MW1		3.85	4.07	6.67	6.41	4.78	2.44	2.04	0.66			2.14	6.31				3.94	6.67	0.66	2.06	-0.06	1.74
MW3		4.05	4.93	6.90	6.37	4.82	3.14	2.05	0.67			2.18	7.65				4.28	7.65	0.67	2.29	-0.02	1.86
OLDS	N=	2	1	2	1	1	2	1		1	1	1					13					
MW1		4.62	2.79	5.47	2.08	4.55	1.79	2.49		3.03	4.86	3.19					3.60	6.85	0.87	1.54	0.32	2.95
MW3		4.34	2.94	5.42	2.21	4.70	1.61	2.31		2.77	4.79	3.05					3.50	6.72	0.82	1.53	0.34	2.90
PLYM	N=	1	1	1		1	1	1	1	1			1				9					
MW1		6.99	6.03	5.22		4.59	3.70	3.40	4.03	2.67			0.86				4.17	6.99	0.86	1.83	-0.21	2.55
MW3		7.37	6.28	5.27		4.88	4.14	3.30	4.17	2.74			0.78				4.33	7.37	0.78	1.84	-0.23	2.59
PONT	N=	2	1	2	3	1	1	2		1	1						14					
MW1		4.52	5.29	3.52	4.21	6.38	3.24	2.47		5.40	1.63						3.98	6.38	1.53	1.57	0.01	1.96
MW3		5.16	5.57	3.64	4.45	6.68	3.39	2.48		5.31	1.32						4.16	6.74	1.32	1.73	-0.11	2.06
RAMB	N=	2	2		1		1				1						7					
MW1		3.19	5.56		5.09		3.08				5.44						4.45	7.54	3.08	1.68	0.93	2.55
MW3		3.31	5.41		5.98		2.87				5.41						4.53	7.16	2.87	1.65	0.94	1.74
STUD	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
VOLK	N=	1	1	2	1	2		1			1			1		1	11					
MW1		1.61	2.84	1.92	1.45	2.12		1.78			1.94			1.32		1.19	1.84	2.84	1.19	0.47	0.64	3.09
MW3		1.61	2.62	1.78	1.50	1.90		1.92			1.91			1.24		1.14	1.76	2.62	1.14	0.42	0.47	3.00
MISC	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
AV/YR	N=	22	17	16	16	14	18	13	10	13	9	6	5	5	1	4	169					
MW1		4.67	4.63	4.98	3.99	3.41	3.00	2.71	2.64	2.38	2.70	3.44	3.65	3.81	2.99	2.72	3.63					
MW3		4.78	4.76	5.13	4.17	3.44	3.10	2.76	2.69	2.48	2.60	3.35	3.78	3.80	3.03	2.63	3.72					
RANGE																						
MW1 HI		7.23	7.54	7.92	6.41	6.38	5.46	4.41	4.54	5.40	5.44	6.32	6.31	6.67	2.99	4.30		7.92				
MW1 LO		1.61	2.79	1.76	1.45	1.18	0.87	1.53	0.66	0.66	1.07	0.96	0.86	0.77	2.99	1.19			0.66			
MW3 HI		7.37	7.16	8.37	6.74	6.68	5.57	4.51	4.40	5.31	5.41	6.20	7.65	7.19	3.03	4.41		8.37				
MW3 LO		1.61	2.62	1.66	1.50	1.36	0.82	1.46	0.67	0.84	1.00	0.89	0.78	0.69	3.03	1.09			0.64			
S.D./YR																						
MW1		1.53	1.39	1.84	1.42	1.47	1.13	0.86	1.11	1.21	1.56	1.86	2.09	2.62	0.0	1.77				1.67		
MW3		1.59	1.36	1.95	1.51	1.56	1.17	0.84	1.07	1.20	1.53	1.83	2.65	2.75	0.0	1.77				1.75		
SKEWNESS																						
MW1 G1		0.09	0.41	-0.20	0.03	0.32	0.14	0.35	0.12	0.98	0.77	0.26	0.22	-0.22	0.0	0.01					0.39	
MW1 G2		2.22	2.26	2.05	2.23	2.30	3.38	2.47	2.76	4.17	2.19	2.24	1.92	1.34	0.0	1.01						2.49
MW3 G1		0.05	0.09	-0.25	0.09	0.40	0.05	0.39	-0.01	0.70	0.94	0.29	0.46	-0.05	0.0	0.05					0.40	
MW3 G2		2.08	1.89	2.17	2.16	2.33	2.93	2.66	2.86	3.71	2.49	2.33	1.98	1.49	0.0	1.07						2.45

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR WASHINGTON

HYDROCARBONS IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1	2	1	2	2	2		1	1						13					
	MW1	6.35	5.24	2.89	2.79	10.21	7.68	9.50		5.39	10.54						7.00	15.28	2.79	3.66	0.78	3.01
	MW3	4.35	4.47	2.58	2.58	8.56	6.00	8.82		4.78	9.57						5.98	12.91	2.53	3.24	0.84	2.66
CADI	N=	1		1		1		1			1	1					6					
	MW1	2.15		2.66		6.15		4.75			8.24	5.48					4.91	8.24	2.15	2.27	0.14	1.92
	MW3	1.74		2.58		5.28		4.04			7.53	5.67					4.48	7.53	1.74	2.14	0.08	1.86
CHEV	N=	5	4	5	5	3	3	3	3	4	2	1	1	1	2	1	39					
	MW1	2.22	5.90	5.40	4.89	15.25	12.12	9.20	7.53	7.13	14.00	3.51	6.17	3.89	5.52	9.39	7.19	22.21	1.06	4.98	1.28	4.16
	MW3	2.02	5.22	4.66	4.25	14.16	13.40	8.12	6.62	6.04	11.23	3.39	5.50	3.48	5.16	9.00	6.54	18.35	1.02	4.85	1.26	3.56
CHRY	N=	1	1	2					1					1			6					
	MW1	5.69	4.03	13.27					8.09					4.55			8.15	14.37	4.03	4.27	0.50	1.64
	MW3	5.19	3.82	10.35					5.77					4.31			6.64	11.09	3.82	2.99	0.62	1.67
DODG	N=	1	1	1	2		2			1			1			1	10					
	MW1	4.09	2.37	5.64	3.12		5.82			5.92			36.58			4.01	7.65	36.58	2.37	10.30	2.55	7.72
	MW3	3.78	2.38	4.91	2.47		4.24			5.32			35.16			3.87	6.89	35.16	1.92	10.01	2.61	7.92
FORD	N=	5	3	2	2	2	3	4	3	3	1	1	1	1	1		32					
	ML	3.25	3.56	3.20	4.71	8.87	8.28	6.91	12.50	14.71	2.61	5.53	5.19	10.42	6.66		7.04	32.81	2.17	6.30	2.83	11.27
	MW3	3.02	3.18-	2.63	4.30	8.61	7.59	6.19	11.14	13.96	2.22	4.66	4.83	10.90	5.93		6.48	31.39	1.94	5.87	2.88	11.99
IMPE	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
MERC	N=	1	1	1						1	1	1					6					
	MW1	2.87	3.54	3.50						6.02	6.26	2.59					4.14	6.26	2.59	1.61	0.55	1.53
	MW3	2.72	3.50	3.14						4.47	5.99	2.24					3.68	5.99	2.24	1.37	0.78	2.39
OLDS	N=	2	1		1	1	1	1	1	1			1		1		11					
	MW1	2.83	2.94		4.13	10.22	6.07	7.51	6.10	8.31			12.35		6.05		6.35	12.35	2.09	3.18	0.47	2.28
	MW3	2.45	2.67		3.85	9.21	5.21	7.44	5.92	8.11			10.15		5.40		5.74	10.15	1.79	2.82	0.21	1.76
PLYM	N=	1	2	1	1	1	1	2	1			1		1			12					
	MW1	2.50	4.30	4.05	3.66	4.26	14.03	4.54	5.05			4.55		4.49			5.01	14.03	2.50	2.97	2.57	8.55
	MW3	2.06	3.64	3.44	3.07	3.77	11.02	3.85	4.24			4.17		4.28			4.2>	11.02	2.06	2.26	2.42	8.14
PONT	N=	1	1	1	1	1	2	1		1	1		1				11					
	MW1	2.94	3.25	5.53	3.75	5.38	9.97	8.00		8.85	6.37		6.15				6.38	12.57	2.94	2.80	0.80	3.23
	MW3	2.88	3.50	5.12	3.51	5.08	9.12	7.35		8.33	5.73		5.80				6.01	12.18	2.88	2.67	1.07	3.65
RAMB	N=	1	1		1	1	1		1	1		1			1		9					
	MW1	1.98	2.88		3.79	4.42	6.01		8.57	7.35		17.29			6.18		6.30	17.29	1.98	4.57	1.93	4.61
	MW3	1.85	2.71		3.37	4.11	5.83		6.52	6.67		14.46			5.94		5.72	14.46	1.85	3.72	1.48	4.59
STUD	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
VOLK	N=		1	2	1	1		1	1	1				1	1	1	11					
	MW1		4.43	4.59	2.35	5.01		6.65	5.96	8.16				9.72	6.17	7.91	5.96	9.72	2.35	2.17	0.01	2.35
	MW3		3.68	4.19	2.15	4.67		6.29	5.58	7.45				7.69	6.09	7.31	5.60	9.69	2.15	2.13	0.24	2.57
MISC	N=	1	1				1										3					
	MW1	2.91	3.43				7.79										4.71	7.79	2.91	2.68	0.68	1.51
	MW3	2.65	2.53				7.65										4.28	7.65	2.53	2.93	0.71	1.51
AV/YR	N=	21	18	16	13	13	16	15	11	14	7	6	5	5	6	3	169					
	MW1	3.08	3.73	5.35	3.91	9.19	8.98	7.35	8.54	8.85	8.87	6.49	13.29	6.62	6.02	7.11	6.60					
	MW3	2.74	3.28	4.55	3.45	8.38	8.22	6.68	7.39	7.99	7.65	5.77	12.29	6.54	5.62	6.73	5.94					
RANGE																						
	MW1 HI	6.35	6.29	14.27	5.86	19.07	16.92	10.88	24.08	32.81	22.21	17.29	36.58	10.42	7.81	9.39		36.58				
	MW1 LO	1.06	1.60	2.39	2.35	4.26	3.80	3.32	4.88	4.59	2.61	2.59	5.19	3.89	3.23	4.01			1.06			
	MW3 HI	5.19	5.54	11.03	5.05	17.14	18.35	10.39	20.39	31.39	18.14	14.46	35.16	10.90	7.35	9.00		35.16				
	MW3 LO	1.02	1.53	1.98	1.92	3.77	3.37	3.41	4.16	3.82	2.22	2.24	4.83	3.48	2.98	3.87			1.02			
S.D./YR																						
	MW1	1.32	1.31	3.59	1.06	4.91	3.89	2.13	5.48	7.18	6.37	5.42	13.33	3.18	1.52	2.79				4.92		
	MW3	1.07	1.07	2.75	1.02	4.50	4.49	2.14	4.63	6.99	5.27	4.42	12.96	3.48	1.45	2.62				4.61		
SKEWNESS																						
	MW1 G1	1.10	0.35	1.52	0.29	0.77	0.62	-0.16	2.32	2.95	1.46	1.61	1.35	0.41	-0.98	-0.48					3.99	
	MW1 G2	3.67	2.32	4.05	2.29	2.32	2.25	2.33	7.23	10.44	3.98	3.90	3.01	1.22	3.25	1.51						15.61
	MW3 G1	0.79	0.32	1.35	0.22	0.74	1.08	0.11	2.26	2.95	1.26	1.52	1.41	0.43	-0.93	-0.39					3.19	
	MW3 G2	3.09	2.42	3.49	1.97	2.30	2.99	2.15	6.95	10.47	3.58	3.74	3.12	1.29	3.17	1.50						17.31

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR WASHINGTON

CARBON MONOXIDE IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1	2	1	2	2	2		1	1											
MW1		105.15	97.63	48.51	36.74	153.64	109.00	137.82		59.49	110.48						13					
MW3		68.94	67.19	40.31	27.54	135.60	83.29	132.08		50.67	99.65						100.58	193.01	36.74	46.38	0.52	2.72
CADI	N=	1		1		1		1			1	1					84.35	175.72	27.54	49.69	0.85	2.81
MW1		29.43		23.31		92.04		105.34			226.46	140.21					6					
MW3		18.70		23.69		73.46		75.93			207.14	142.29					102.80	226.46	23.31	75.53	0.54	2.25
CHEV	N=	5	4	3	3	3	3	3	3	4	2	1	1	1	2	1	90.21	207.14	18.70	72.68	0.62	2.07
MW1		26.53	47.76	92.10	75.87	124.42	127.03	86.74	88.36	82.24	53.56	43.82	70.24	35.86	59.90	146.55	39					
MW3		21.08	34.75	77.21	56.66	116.90	113.57	80.15	78.16	69.20	47.21	41.78	57.54	31.23	56.73	147.33	75.89	188.91	11.58	46.14	0.70	2.82
CHRY	N=	1	1	2					1					1			66.03	177.08	7.96	43.82	0.87	3.16
MW1		83.50	36.43	142.74					129.04					47.87			6					
MW3		76.39	27.18	113.10					77.41					46.75			97.06	203.58	36.43	61.45	0.85	2.52
DODG	N=	1	1	1	2		2			1			1			1	75.66	144.05	27.18	39.78	0.64	2.70
MW1		46.61	28.78	81.63	56.02		91.28			85.05			168.58			52.26	10					
MW3		37.66	23.40	65.67	39.26		68.93			70.51			163.07			49.17	75.76	168.58	28.78	44.87	1.10	2.95
FORD	N=	5	3	2	2	2	3	4	3	3	1	1	1	1	1		62.59	163.07	23.40	42.78	1.42	4.06
MW1		34.75	45.66	32.60	53.08	109.69	89.19	86.77	47.48	58.42	28.60	46.02	30.77	103.70	87.33		32					
MW3		28.82	33.32	23.80	46.04	103.86	84.21	75.02	42.64	53.91	22.56	45.59	30.75	105.20	74.51		60.33	136.90	15.27	32.31	0.53	2.44
IMPE	N=																53.48	137.03	13.69	31.04	0.85	3.26
MW1																	0					
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=																0.0	0.0	0.0	0.0	0.0	0.0
MW1																	0					
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
MERC	N=	1	1	1						1	1	1					0.0	0.0	0.0	0.0	0.0	0.0
MW1		48.02	26.15	56.32						92.22	65.28	25.87					6					
MW3		41.27	23.06	47.40						48.14	59.00	20.97					52.32	92.22	25.87	25.22	0.41	2.10
OLDS	N=	2	1		1	1	1	1	1	1			1		1		39.98	59.00	20.97	15.06	-0.24	1.64
MW1		24.95	35.24		63.16	95.91	53.96	98.41	54.25	89.71			104.50		42.25		11					
MW3		17.23	29.02		55.71	84.63	33.37	100.05	47.94	90.90			98.82		36.44		62.48	104.50	19.95	30.13	0.15	1.57
PLYM	N=	1	2	1	1	1	1	2	1			1		1			59.58	100.05	11.69	32.51	0.25	1.55
MW1		38.60	55.27	54.29	34.38	50.13	259.08	67.15	53.94			34.85		71.78			12					
MW3		24.59	47.37	46.06	24.78	38.79	204.00	41.93	37.77			27.89		53.02			70.16	259.08	34.38	61.24	2.73	9.02
PONT	N=	1	1	1	1	1	2	1		1	1		1				52.97	204.00	24.99	48.48	2.82	9.39
MW1		7.81	28.60	63.11	47.77	81.24	112.62	78.21		137.39	100.42		47.98				11					
MW3		6.68	26.14	57.13	43.13	81.26	100.66	76.47		136.60	87.04		45.08				74.35	146.30	7.81	42.47	0.31	2.39
RAMB	N=	1	1		1	1	1		1	1		1			1		69.17	140.49	6.68	41.70	0.47	2.41
MW1		22.84	35.79		38.71	67.80	131.78		44.48	144.29		110.48			71.74		9					
MW3		15.91	33.17		34.59	62.98	123.57		33.71	134.87		102.07			68.54		74.21	144.29	22.84	44.52	0.48	1.76
STUD	N=																67.72	134.87	15.91	43.25	0.43	1.72
MW1																	0					
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
VOLK	N=		1	2	1	1		1	1	1				1	1	1	0.0	0.0	0.0	0.0	0.0	0.0
MW1			49.76	37.30	26.68	76.91		53.39	51.22	69.35				60.52	61.55	31.53	11					
MW3			44.24	35.62	22.85	74.19		47.78	46.73	65.42				60.95	60.13	29.93	50.51	76.91	26.68	16.62	-0.12	2.00
MISC	N=	1	1				1										47.59	74.19	22.85	16.68	-0.55	1.94
MW1		14.02	12.18				46.00										3					
MW3		13.13	11.45				45.80										24.07	46.00	12.18	19.02	0.70	1.51
AV/YR	N=	21	18	16	13	13	16	15	11	14	7	6	5	5	6	3	23.47	45.80	11.45	19.37	0.71	1.51
MW1		35.83	43.84	67.33	53.33	104.93	110.33	98.18	67.32	84.41	91.20	66.88	84.42	63.95	63.78	76.78	169					
MW3		27.97	34.37	56.08	42.25	95.77	94.12	79.26	55.09	73.89	81.41	63.44	79.06	59.44	58.85	75.48	71.66					
RANGE																	61.87					
MW1 HI		105.15	97.63	203.58	119.52	193.01	259.08	175.25	135.96	144.29	226.46	140.21	168.58	103.70	99.28	146.55		259.08				
MW1 LO		7.81	12.18	19.07	26.68	50.13	44.77	51.33	15.27	53.94	28.60	25.87	30.77	35.86	20.53	31.53			7.81			
MW3 HI		76.39	67.19	153.70	89.86	177.08	204.00	175.72	118.64	136.60	207.14	142.29	163.07	105.20	94.80	147.33		207.14				
MW3 LO		6.68	11.45	14.37	19.83	38.79	33.10	40.32	13.69	48.14	20.63	20.97	30.75	31.23	18.66	29.93			6.68			
S.D./YR																						
MW1		23.39	25.10	51.61	24.92	43.22	55.93	30.91	36.41	29.45	67.55	46.81	54.53	25.99	29.05	61.31				44.73		
MW3		18.26	15.87	40.70	20.02	39.10	49.58	34.19	27.61	29.31	63.11	48.10	53.39	27.82	27.39	62.97				40.78		
SKEWNESS																						
MW1 G1		1.55	1.05	1.63	1.46	1.06	1.06	1.17	0.85	0.95	1.16	0.76	0.69	0.59	-0.29	0.62					1.31	
MW1 G2		5.24	2.92	4.79	4.77	3.20	4.16	4.92	2.81	2.97	3.42	1.85	2.14	2.19	1.90	1.50						5.11
MW3 G1		1.31	0.57	1.44	0.98	0.94	0.68	1.37	0.93	1.31	1.12	0.81	0.81	0.93	-0.26	0.64					1.29	
MW3 G2		4.22	2.33	4.14	3.34	3.16	2.62	5.26	3.77	3.48	3.39	2.07	2.20	2.64	1.97	1.51						4.55

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR WASHINGTON

CARBON DIOXIDE IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1	2	1	2	2	2		1	1						13					
	RW1	944.63	826.93	639.14	710.65	598.93	457.69	479.75		701.86	384.56						609.21	944.63	352.05	175.15	0.26	2.26
	RW3	929.56	810.88	616.11	701.15	575.65	454.16	466.45		690.99	370.48						594.14	929.56	339.16	172.57	0.28	2.32
CADI	N=	1		1		1		1			1	1					6					
	RW1	926.20		815.17		574.36		625.52			491.65	599.56					672.08	926.20	491.65	164.07	0.65	1.92
	RW3	912.33		783.54		568.65		622.75			491.11	577.05					659.24	912.33	491.11	157.53	0.68	2.05
CHEV	N=	5	4	3	3	3	3	3	3	4	2	1	1	1	2	1	39					
	RW1	607.40	638.97	627.80	529.33	445.18	395.96	494.28	500.18	515.62	488.16	548.71	566.53	483.17	512.72	524.30	532.25	823.54	395.38	116.52	0.42	2.72
	RW3	598.56	614.26	611.57	516.74	437.53	403.97	483.93	477.33	500.78	475.42	539.73	544.87	460.42	489.85	510.20	516.72	797.99	327.20	108.62	0.51	2.89
CHRY	N=	1	1	2					1					1			6					
	RW1	701.57	707.98	608.50					524.74					690.15			640.24	707.98	524.74	88.31	-0.68	1.50
	RW3	655.27	692.37	614.81					537.37					661.26			629.32	692.37	537.37	69.69	-0.58	1.48
DODG	N=	1	1	1	2		2			1			1			1	10					
	RW1	558.65	422.75	696.84	472.39		474.35			597.35			429.83			567.83	516.68	696.84	422.75	87.60	0.80	2.69
	RW3	553.21	408.88	688.40	470.85		466.84			579.51			409.26			552.29	506.70	688.40	401.88	87.67	0.75	2.79
FORD	N=	5	3	2	2	2	3	4	3	3	1	1	1	1	1		32					
	RW1	555.48	526.97	658.02	551.27	492.74	455.88	395.70	550.15	493.44	518.11	318.85	332.74	410.79	561.02		499.56	773.72	318.85	123.35	0.38	2.21
	RW3	538.19	514.85	641.36	533.64	503.74	444.37	386.87	545.68	481.86	494.20	309.76	328.91	397.47	546.91		488.55	749.95	309.76	120.46	0.34	2.08
IMPE	N=																0					
	RW1																0.0	0.0	0.0	0.0	0.0	0.0
	RW3																0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=																0					
	RW1																0.0	0.0	0.0	0.0	0.0	0.0
	RW3																0.0	0.0	0.0	0.0	0.0	0.0
MERC	N=	1	1	1						1	1	1					6					
	RW1	701.60	544.19	689.72						399.65	505.72	367.01					534.65	701.60	367.01	140.84	0.10	1.52
	RW3	664.18	526.82	664.30						408.36	486.24	353.03					517.16	664.30	353.03	128.91	0.07	1.57
OLDS	N=	2	1		1	1	1	1	1	1			1		1		11					
	RW1	715.19	643.32		841.24	669.55	651.25	499.53	565.17	609.79			651.13		650.54		655.63	841.24	499.53	87.68	0.35	3.51
	RW3	697.44	622.84		803.93	658.02	651.82	476.53	543.99	584.46			624.91		644.41		636.89	803.93	476.53	85.90	0.02	3.15
PLYM	N=	1	2	1	1	1	1	2	1			1		1			12					
	RW1	382.97	557.74	566.29	438.24	438.88	378.22	494.33	478.20			568.70		490.87			488.88	650.10	378.22	82.52	0.44	2.34
	RW3	439.68	543.79	550.53	427.29	457.78	398.91	495.55	470.67			573.89		487.33			490.40	627.86	398.91	69.20	0.66	2.30
PONT	N=	1	1	1	1	1	2	1		1	1		1				11					
	RW1	783.13	688.88	663.98	707.17	636.72	574.02	602.86		637.57	609.59		746.05				656.71	783.13	560.08	68.96	0.45	2.16
	RW3	766.64	627.27	632.41	627.27	622.65	559.18	594.17		613.03	588.65		690.63				625.56	766.64	543.04	60.04	1.13	3.96
RAMB	N=	1	1		1	1	1		1	1		1			1		9					
	RW1	383.65	429.62		550.37	501.21	412.48		358.05	603.37		366.53			397.12		444.71	603.37	358.05	86.90	0.78	2.18
	RW3	428.56	419.53		532.79	487.22	381.53		348.57	579.30		353.85			384.50		435.09	579.30	348.57	81.78	0.65	2.08
STUD	N=																0					
	RW1																0.0	0.0	0.0	0.0	0.0	0.0
	RW3																0.0	0.0	0.0	0.0	0.0	0.0
VOLK	N=		1	2	1	1		1	1	1				1	1	1	11					
	RW1		386.20	346.28	321.78	302.70		412.75	381.42	280.23				248.08	234.61	302.32	323.88	412.75	234.61	57.14	-0.05	1.96
	RW3		379.94	339.51	315.41	292.85		406.55	378.66	281.87				245.41	227.29	314.39	320.13	406.55	227.29	56.33	-0.12	2.07
MISC	N=	1	1				1										3					
	RW1	377.86	251.62				205.90										278.47	377.86	205.90	89.07	0.51	1.51
	RW3	368.36	243.48				199.05										270.30	368.36	199.05	87.79	0.51	1.51
AV/YR	N=	21	18	16	13	13	16	15	11	14	7	6	5	5	6	3	169					
	RW1	619.29	564.09	613.71	554.22	512.48	450.97	476.95	496.21	526.62	498.00	461.56	545.26	464.61	478.13	464.82	530.26					
	RW3	609.36	545.62	598.59	535.92	504.51	446.05	467.96	486.21	513.16	483.08	451.22	519.72	450.38	463.80	458.96	517.80					
RANGE																						
	RW1 HI	944.63	826.93	815.17	841.24	699.27	651.25	625.52	693.61	701.86	609.59	599.56	746.05	690.15	650.54	567.83		944.63				
	RW1 LO	365.82	251.62	344.13	321.78	302.70	205.90	326.47	358.05	280.23	384.56	318.85	332.74	248.08	234.61	302.32			205.90			
	RW3 HI	929.56	810.88	783.54	803.93	664.81	651.82	622.75	673.78	690.99	588.65	577.05	690.63	661.26	644.41	552.29		929.56				
	RW3 LO	352.63	243.48	335.22	315.41	292.85	199.05	327.17	348.57	281.87	370.48	309.76	328.91	245.41	227.29	314.39			199.05			
S.D./YR																						
	RW1	195.11	147.07	131.92	138.36	116.45	105.53	102.88	106.47	117.25	68.85	123.66	166.19	159.44	145.08	142.41				142.38		
	RW3	180.02	141.58	126.42	127.46	113.73	103.86	101.05	103.23	110.26	65.76	124.78	149.60	150.63	144.01	126.96				135.51		
SKEWNESS																						
	RW1 G1	-0.08	-0.35	-0.83	0.46	-0.07	-0.27	0.03	0.29	-0.58	-0.07	-0.01	-0.11	0.09	-0.65	-0.63					0.29	
	RW1 G2	1.72	2.43	2.97	2.81	2.31	3.44	1.52	2.10	2.48	2.80	1.16	1.63	2.32	2.44	1.51						2.70
	RW3 G1	0.02	-0.28	-0.88	0.44	-0.18	-0.32	0.05	0.23	-0.52	-0.18	-0.01	-0.17	0.06	-0.52	-0.62					0.25	
	RW3 G2	1.95	2.56	3.03	2.99	2.17	3.76	1.58	1.99	2.58	2.99	1.11	1.53	2.28	2.39	1.51						2.89

SUMMARY OF EXHAUST EMISSION VALUES FOR WASHINGTON

CORRECTED OXIDES OF NITROGEN IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	1	1	2	1	2	2	2		1	1						13					
	RW1	6.91	8.20	6.75	4.95	2.58	4.54	3.84		7.44	2.55						5.04	8.43	1.64	2.33	0.03	1.66
	RW3	7.31	9.38	6.64	4.97	2.63	4.91	3.60		7.95	2.20						5.19	9.38	1.64	2.53	0.12	1.68
CADI	N=	1		1		1		1			1	1					4					
	RW1	7.65		9.77		4.26		2.40			1.63	2.62					4.73	9.77	1.63	3.28	0.64	1.80
	RW3	8.53		9.38		4.42		2.96			1.72	2.36					4.90	9.38	1.72	3.29	0.52	1.93
CHEV	N=	5	4	3	3	3	3	3	3	4	2	1	1	1	2	1	39					
	RW1	4.78	6.02	5.28	4.26	3.79	3.11	4.61	4.30	6.13	4.73	5.69	6.81	7.28	5.72	1.86	4.91	10.59	1.49	1.93	0.58	3.33
	RW3	4.86	6.23	5.26	4.46	3.82	3.29	4.63	4.28	6.19	4.66	5.63	7.23	7.01	5.56	1.72	4.95	10.62	1.56	1.92	0.54	3.36
CHRY	N=	1	1	2					1					1			6					
	RW1	6.13	7.37	5.00					6.11					8.88			6.42	8.88	3.30	1.85	-0.51	2.76
	RW3	5.84	7.53	5.65					7.91					8.81			6.90	8.81	4.59	1.54	-0.36	2.03
DODG	N=	1	1	1	2		2						1			1	10					
	RW1	5.97	6.14	9.35	5.25		4.95			4.51			1.55			8.94	5.69	9.35	1.55	2.39	-0.03	2.38
	RW3	6.14	5.91	10.21	5.85		5.32			4.95			1.42			8.88	5.99	10.21	1.42	2.53	-0.08	2.63
FORD	N=	5	3	2	2	2	3	4	3	3	1	1	1	1	1		32					
	RW1	6.59	6.20	7.30	7.73	4.43	4.52	3.26	6.82	4.92	3.34	2.98	8.13	2.26	6.83		5.50	8.89	1.13	2.43	-0.20	1.85
	RW3	6.85	6.35	7.60	8.05	4.30	4.62	3.46	6.97	4.96	3.24	2.76	8.05	2.19	7.06		5.63	8.99	1.28	2.55	-0.22	1.82
IMPE	N=																0					
	RW1																0.0	0.0	0.0	0.0	0.0	0.0
	RW3																0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=																0					
	RW1																0.0	0.0	0.0	0.0	0.0	0.0
	RW3																0.0	0.0	0.0	0.0	0.0	0.0
MERC	N=	1	1	1						1	1	1					6					
	RW1	3.42	6.86	5.63						3.80	3.97	2.80					4.42	6.86	2.80	1.53	0.68	2.05
	RW3	4.43	6.79	5.74						4.78	3.85	2.72					4.72	6.79	2.72	1.43	0.10	2.09
OLDS	N=	2	1		1	1	1	1	1	1			1		1		11					
	RW1	5.29	4.71		5.17	4.43	4.29	2.28	6.03	6.58			5.10		9.75		5.36	9.75	2.28	1.83	0.96	4.63
	RW3	5.29	4.82		5.01	4.34	5.00	2.09	6.11	6.28			5.20		8.66		5.29	8.66	2.09	1.58	0.18	4.26
PLYM	N=	1	2	1	1	1	1	2	1			1		1			12					
	RW1	5.82	8.15	6.34	6.99	4.11	0.93	6.25	5.71			11.14		7.12			6.42	11.14	0.93	2.76	-0.24	2.81
	RW3	6.17	8.36	6.67	7.26	4.46	1.48	6.83	6.05			11.59		8.18			6.86	11.59	1.48	2.66	-0.22	2.96
PONT	N=	1	1	1	1	1	2	1		1	1		1				11					
	RW1	7.50	4.25	8.74	4.87	3.45	4.45	6.51		5.94	6.96		7.79				5.91	8.76	2.61	1.91	-0.31	2.06
	RW3	8.15	4.89	8.80	5.20	3.33	4.48	6.39		5.46	6.93		6.84				5.91	8.80	2.41	1.92	-0.39	2.41
RAMB	N=	1	1		1	1	1		1	1		1			1		9					
	RW1	3.20	6.27		5.84	4.84	2.65		5.14	2.83		3.49			3.48		4.20	6.27	2.65	1.35	0.37	1.60
	RW3	3.21	6.40		6.16	4.80	2.32		5.40	2.58		3.77			3.32		4.22	6.40	2.32	1.53	0.25	1.59
STUD	N=																0					
	RW1																0.0	0.0	0.0	0.0	0.0	0.0
	RW3																0.0	0.0	0.0	0.0	0.0	0.0
VOLK	N=		1	2	1	1		1	1	1				1	1	1	11					
	RW1		3.99	3.42	3.60	3.13		4.56	3.86	3.25				1.92	1.57	7.11	3.63	7.11	1.57	1.45	1.03	4.41
	RW3		4.01	3.22	3.37	2.84		5.62	3.72	3.39				1.89	1.50	7.49	3.66	7.49	1.50	1.67	1.08	3.76
MISC	N=	1	1				1										3					
	RW1	7.15	4.15				1.64										4.32	7.15	1.64	2.77	0.11	1.51
	RW3	7.52	4.00				1.54										4.36	7.52	1.54	3.01	0.22	1.51
AV/YR	N=	21	18	16	13	13	16	15	11	14	7	6	5	5	6	3	169					
	RW1	5.78	6.17	6.29	5.40	3.82	3.77	4.19	5.48	5.26	3.99	4.79	5.88	5.50	5.52	5.98	5.18					
	RW3	6.02	6.36	6.43	5.63	3.81	3.97	4.38	5.73	5.36	3.99	4.81	5.76	5.62	5.28	6.04	5.31					
RANGE																						
	RW1 HI	8.55	9.31	9.77	8.80	6.33	8.07	8.99	7.24	10.59	6.96	11.14	8.13	8.88	9.75	8.94		11.14				
	RW1 LO	3.20	3.38	3.19	2.48	2.31	0.93	1.13	3.32	1.69	1.63	2.62	1.55	1.92	1.57	1.86			0.93			
	RW3 HI	8.88	9.46	10.21	8.99	6.22	8.50	9.11	7.91	10.62	6.93	11.59	8.05	8.81	8.66	8.88		11.59				
	RW3 LO	3.21	4.00	3.04	2.63	2.21	1.48	1.28	3.54	1.58	1.72	2.36	1.42	1.89	1.50	1.72			1.28			
S.D./YR																						
	RW1	1.58	1.75	2.30	1.59	1.20	2.05	2.30	1.30	2.53	1.75	3.32	2.69	3.19	2.99	3.68				2.20		
	RW3	1.71	1.78	2.30	1.68	1.24	2.17	2.37	1.53	2.55	1.78	3.54	2.64	3.34	2.76	3.80				2.27		
SKEWNESS																						
	RW1 G1	0.06	0.12	0.03	0.30	0.46	0.58	0.49	-0.29	0.65	0.39	1.40	-0.89	-0.26	0.11	-0.51					0.28	
	RW1 G2	2.12	2.00	1.59	1.26	2.51	2.47	2.28	2.05	2.96	2.43	3.37	2.34	1.29	1.82	1.51						2.42
	RW3 G1	0.22	0.30	0.08	0.13	0.28	0.58	0.31	-0.01	0.96	0.48	1.40	-0.98	-0.30	-0.13	-0.60					0.22	
	RW3 G2	2.10	2.07	1.74	2.86	2.13	2.39	2.14	1.83	2.96	2.33	3.40	2.51	1.23	1.57	1.51						2.39

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR FIVE CITIES

RESULTS BASED ON LOG TRANSFORM

HYDROCARBONS IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	5	5	7	6	6	6	6	4	3	3	2	1		1		55					
	MW1	3.90	4.93	4.67	6.78	7.16	7.16	9.69	10.17	7.60	7.71	10.94	7.81		53.05		6.95	53.05	2.49	3.75	0.81	5.40
	MW3	3.26	4.30	4.04	5.83	5.72	6.15	9.07	9.51	6.76	6.91	10.32	7.31		50.75		6.08	50.75	2.93	3.40	0.98	5.99
CADI	N=	2	2	2	1	2	1	2	2	1	1	1	1	1		1	20					
	MW1	2.16	5.23	3.32	5.78	7.48	7.85	4.92	5.20	7.51	8.24	5.48	9.11	5.82		12.42	5.45	12.42	2.15	2.52	-0.54	2.99
	MW3	1.71	4.50	2.88	5.47	6.25	7.43	4.54	4.98	7.42	7.53	5.67	8.45	5.77		11.30	4.93	11.30	1.68	2.46	-0.76	3.17
CHEV	N=	27	19	19	18	16	19	20	19	16	12	6	4	5	6	7	213					
	MW1	2.94	4.38	5.44	5.79	7.88	9.12	12.20	7.18	8.41	9.67	5.37	5.61	14.16	7.02	6.64	6.55	62.51	1.06	4.05	0.27	3.72
	MW3	2.66	3.79	4.61	4.92	6.98	8.24	10.88	6.39	7.51	8.33	4.83	5.12	13.04	6.43	6.25	5.80	59.80	1.02	3.72	0.37	3.57
CHRY	N=	2	2	4	2	2	3		1	1				1		1	19					
	MW1	4.07	4.07	8.92	5.34	6.93	6.21		8.09	9.28				4.55		6.51	6.24	14.37	2.46	3.02	-0.16	2.27
	MW3	3.36	3.75	7.42	4.69	6.03	5.22		5.77	6.95				4.31		5.39	5.27	11.03	1.94	2.45	-0.51	2.92
DODG	N=	4	4	5	6	5	7	4	3	3	2		1	1		2	47					
	MW1	3.41	3.73	6.07	4.61	6.93	5.42	8.64	7.12	7.73	6.12		36.58	28.57		6.47	6.09	36.58	2.37	3.58	0.95	4.12
	MW3	2.97	3.46	5.00	3.73	5.83	4.32	6.34	6.35	6.94	5.70		35.16	26.94		6.13	5.15	35.16	1.92	3.01	1.17	5.06
FORD	N=	23	17	16	14	14	18	19	12	13	7	5	4	6	4	5	177					
	MW1	5.27	5.75	4.60	4.25	6.80	8.04	8.42	8.58	12.20	8.34	5.74	8.56	8.25	6.70	6.04	6.07	72.44	1.28	3.95	1.01	4.95
	MW3	2.94	3.31	4.04	3.78	6.14	7.33	7.71	7.84	11.32	7.46	5.31	7.80	8.08	5.91	5.67	5.50	65.92	1.17	3.66	1.00	4.74
IMPE	N=																0					
	MW1																0.0	0.0	0.0	0.0	0.0	0.0
	MW3																0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=	1	1	1		1	1										5					
	MW1	5.41	5.46	5.70		5.04	7.40										5.75	7.40	5.04	0.86	1.17	2.73
	MW3	4.36	4.55	4.20		3.82	6.54										4.62	6.54	3.82	0.95	1.13	2.86
MERC	N=	5	3	3	3	3	7	2	2	3	1	2	1				30					
	MW1	3.40	4.08	4.49	4.40	7.69	5.43	6.42	11.14	5.97	6.26	2.93	2.25				4.87	12.56	2.25	2.33	0.47	2.34
	MW3	3.12	3.77	4.03	4.28	6.92	5.02	5.77	10.48	4.83	5.99	2.64	2.17				4.44	12.84	2.17	2.08	0.69	2.82
OLDS	N=	6	7	5	8	2	6	5	4	3	3	3	1	1	3	1	58					
	MW1	2.76	3.43	7.46	4.99	7.00	10.24	8.44	7.35	12.18	4.60	4.77	12.35	4.62	7.09	7.09	5.89	33.74	1.35	3.73	0.34	3.33
	MW3	2.48	3.15	6.59	4.22	6.31	9.00	8.09	6.95	12.25	4.37	4.35	10.15	4.46	6.63	6.42	5.35	30.78	1.31	3.43	0.32	2.98
PLYR	N=	5	7	6	7	5	5	6	3	2	1	1	1	1	1		51					
	MW1	4.16	4.75	7.53	5.13	7.21	7.95	6.82	5.70	8.04	4.06	4.55	12.83	4.49	17.47		6.15	33.45	2.50	3.29	0.97	3.83
	MW3	3.55	4.22	6.44	4.27	6.40	7.30	5.68	4.55	7.44	3.64	4.17	11.94	4.28	14.36		5.33	31.14	2.06	2.86	1.04	4.34
PONT	N=	8	6	8	9	6	7	9	6	3	3	1	2	2	2	1	72					
	MW1	3.99	3.88	5.03	6.00	6.60	7.69	7.90	7.28	6.84	5.26	6.77	6.15	8.46	10.59	5.32	6.05	64.68	2.79	3.40	2.16	10.13
	MW3	3.59	3.62	4.31	5.28	4.11	6.89	7.63	5.99	6.31	4.84	5.89	5.80	8.29	10.46	4.70	5.47	64.71	2.33	3.14	2.24	10.50
RAMB	N=	5	4	2	3	1	3	2	4	3	2	1			1		31					
	MW1	2.27	4.20	4.10	4.56	4.42	4.90	15.45	5.95	6.89	5.14	17.29			6.18		4.99	36.54	1.58	3.34	0.93	4.49
	MW3	2.06	3.81	3.64	4.09	4.11	4.30	14.32	5.14	6.28	4.68	14.46			5.94		4.49	35.96	1.50	3.02	1.05	4.89
STUD	N=									1				1			2					
	MW1									6.60				5.45			6.00	6.60	5.45	0.82	0.02	1.10
	MW3									7.04				4.77			5.60	7.04	4.77	1.61	0.01	1.00
VOLK	N=	4	6	10	6	7	4	5	4	3	3	1	1	2	2	2	60					
	MW1	4.24	4.03	3.82	4.96	5.22	8.78	10.85	7.34	8.50	15.48	4.74	2.66	12.39	9.21	7.75	6.06	56.27	1.88	3.94	0.89	4.57
	MW3	3.52	3.58	3.69	4.43	4.76	8.02	10.34	7.07	7.68	15.84	4.37	2.62	11.80	8.96	7.47	5.63	54.75	2.03	3.75	0.94	4.56
MISC	N=	4	3	1	1	1	1										11					
	MW1	2.31	2.65	4.49	1.94	16.37	7.79										3.35	16.37	1.55	2.34	1.25	3.68
	MW3	2.11	2.16	4.53	1.77	15.08	7.65										3.01	15.08	1.38	2.20	1.21	3.41
AV/YR	N=	101	86	89	84	71	83	80	64	55	38	23	16	21	20	20	851					
	MW1	3.21	4.07	5.20	5.14	6.98	7.78	9.24	7.49	8.86	7.84	5.69	7.40	9.19	8.59	6.73	6.08					
	MW3	2.86	3.61	4.53	4.45	6.16	6.92	8.36	6.69	8.05	7.09	5.20	6.83	8.76	7.93	6.26	5.42					
RANGE																						
	MW1 HI	10.13	16.79	33.74	64.68	19.07	46.68	72.44	24.08	57.94	31.96	17.29	16.58	37.45	53.05	12.42		72.44				
	MW1 LO	1.06	1.60	1.88	1.94	2.09	2.46	3.32	3.91	4.24	1.35	2.59	2.25	3.89	3.23	3.98			1.06			
	MW3 HI	10.27	15.76	31.14	64.71	17.14	40.48	65.92	20.39	54.57	29.77	14.46	35.16	36.51	50.75	11.30		65.92				
	MW3 LO	1.02	1.53	1.98	1.75	1.88	1.94	3.41	3.13	3.82	1.31	2.24	2.17	3.48	2.98	3.56			1.02			
S.D./YR																						
	MW1	1.21	1.58	2.42	2.76	3.15	4.14	6.01	3.00	4.29	5.04	2.96	5.26	5.97	5.18	2.21				3.70		
	MW3	1.06	1.36	2.04	2.46	2.95	3.79	5.53	2.72	4.06	4.78	2.74	4.77	5.64	4.94	2.22				3.37		
SKEWNESS																						
	MW1 G1	0.10	0.66	1.47	1.55	0.19	0.72	1.48	0.56	1.47	0.08	0.37	0.50	0.61	1.42	0.07					0.74	
	MW1 G2	3.63	5.05	7.52	8.18	2.71	4.46	5.35	2.87	6.41	3.81	2.24	3.32	2.53	5.59	2.05						4.62
	MW3 G1	0.21	0.79	1.76	1.70	0.16	0.76	1.56	0.49	1.43	0.24	0.27	0.66	0.59	1.32	0.03					0.81	
	MW3 G2	3.88	5.74	8.92	9.03	2.56	4.16	5.43	2.69	6.19	3.42	2.12	3.57	2.64	5.34	1.82						4.65

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR FIVE CITIES

CARBON MONOXIDE IN GRAMS PER MILE — RESULTS BASED ON LOG TRANSFORM

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	5	5	7	6	6	6	6	4	3	3	2	1		1		55					
MW1		76.76	65.04	75.09	104.42	119.88	94.78	120.46	116.39	104.35	92.74	198.55	74.73		79.09		96.47	263.03	24.73	48.15	-0.32	3.17
MW3		62.81	47.16	61.64	85.53	101.13	82.38	115.34	107.52	93.77	83.65	182.74	74.39		71.68		82.61	234.21	16.33	45.04	-0.34	3.30
CADI	N=	2	2	2	1	2	1	2	2	1	1	1	1	1		1	20					
MW1		38.69	103.95	39.13	130.57	125.63	153.82	86.71	133.89	112.32	226.46	140.21	147.85	23.55		119.39	90.80	226.46	23.31	59.91	-1.30	3.00
MW3		29.81	97.58	33.79	125.59	105.39	150.31	72.83	125.56	112.64	207.14	142.29	138.26	23.21		103.17	81.95	207.14	18.70	57.19	-0.93	2.80
CHEV	N=	27	19	19	18	16	19	20	19	16	12	6	4	5	6	7	213					
MW1		38.95	52.78	68.15	81.26	94.67	94.30	111.21	79.89	96.40	76.37	55.25	62.66	78.05	75.45	46.40	72.73	312.98	10.72	42.38	-0.57	3.94
MW3		32.57	43.39	53.09	66.65	81.77	82.34	99.84	71.75	87.92	69.45	52.86	54.16	70.60	69.69	78.13	63.41	307.04	7.96	40.98	-0.54	3.35
CHRY	N=	2	2	4	2	2	3		1	1				1		1	19					
MW1		63.58	50.11	118.40	79.67	87.85	106.26		129.04	192.61				47.87		144.26	91.91	203.58	34.09	52.52	-0.21	1.95
MW3		51.56	43.78	102.01	75.47	75.56	80.32		77.41	155.65				46.75		124.63	76.73	169.74	22.73	44.28	-0.65	2.65
DODG	N=	4	4	5	6	5	7	4	3	3	2		1	1		2	47					
MW1		60.49	45.91	84.83	69.99	100.55	78.84	123.16	91.71	112.15	81.64		168.58	59.20		75.16	81.21	224.60	28.78	39.98	0.16	2.23
MW3		49.80	40.43	67.75	54.39	79.21	55.61	86.97	84.77	89.59	74.12		163.07	48.88		74.56	65.23	190.57	23.48	33.67	0.08	2.10
FORD	N=	23	17	16	14	14	18	19	12	13	7	5	4	6	4	5	177					
MW1		36.05	45.47	59.24	44.09	85.45	76.69	79.47	74.07	99.50	87.56	67.13	78.40	92.10	87.61	84.65	64.36	218.55	9.70	37.56	-0.56	3.24
MW3		29.74	35.48	48.14	37.44	75.97	69.89	72.52	65.65	89.73	72.13	64.62	75.08	87.96	75.53	83.50	56.13	197.05	8.67	35.59	-0.50	2.96
IMPE	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=	1	1	1		1	1										5					
MW1		170.53	111.15	61.47		57.80	125.35										96.67	170.53	57.80	45.73	-0.07	1.52
MW3		153.81	90.36	41.44		48.20	105.54										78.23	153.81	41.44	43.50	-0.09	1.55
MERC	N=	5	3	3	3	3	2	2	2	3	1	2	1				30					
MW1		41.73	52.95	59.46	36.14	107.04	62.29	128.68	150.27	71.09	65.28	34.50	21.71				59.81	266.61	21.71	37.23	0.38	2.46
MW3		34.33	46.22	49.80	32.12	86.32	51.71	114.95	138.18	48.25	59.00	29.29	20.72				50.10	249.85	20.52	30.97	0.55	2.98
OLDS	N=	6	7	5	8	2	6	5	4	3	3	3	1	1	3	1	58					
MW1		34.71	51.58	79.11	65.72	68.15	96.77	99.00	81.35	120.33	50.57	75.30	104.50	42.30	54.59	70.68	67.87	173.82	17.78	37.10	-0.54	2.85
MW3		27.65	43.10	69.47	50.29	61.73	77.64	91.13	76.28	124.80	46.61	67.89	98.82	40.99	47.76	59.17	58.21	157.26	11.69	35.34	-0.61	2.92
PLYM	N=	5	7	6	7	5	5	6	3	2	1	1	1	1	1		51					
MW1		58.30	57.65	79.81	55.81	92.90	131.60	87.55	65.49	80.61	102.82	34.85	145.50	71.78	56.23		74.46	259.08	24.82	37.52	0.46	2.99
MW3		45.40	53.63	68.92	45.09	83.17	106.06	69.19	50.86	77.11	89.32	27.89	140.20	53.02	51.36		62.64	248.40	23.07	35.14	0.37	2.71
PONT	N=	8	6	8	9	6	7	9	6	3	3	1	1	2	2	1	72					
MW1		45.22	55.64	76.76	72.24	79.70	87.92	59.33	78.71	134.24	76.74	72.34	47.98	97.47	94.11	63.14	70.02	331.51	7.81	37.38	-0.76	6.44
MW3		38.70	48.81	63.07	56.30	74.34	79.22	55.76	67.82	99.39	71.63	68.93	45.98	93.69	88.78	61.80	61.69	317.25	6.68	34.54	-0.66	5.92
RAMB	N=	5	4	2	3	1	1	2	4	3	2	1			1		31					
MW1		24.64	43.19	57.26	50.25	67.80	98.55	80.96	68.66	129.07	59.92	110.48			71.74		58.53	172.60	15.19	36.63	-0.02	2.28
MW3		18.77	41.08	46.10	43.88	62.98	89.62	87.10	59.08	115.77	55.21	102.07			68.54		52.09	169.85	12.41	37.20	-0.12	2.15
STUD	N=									1							2					
MW1										108.20				1			101.21	108.20	94.67	9.56	0.57	-36.89
MW3										102.12				94.67			93.76	102.12	86.07	11.34	0.27	-22.89
VOLK	N=	4	6	10	6	7	4	5	4	3	3	1	1	2	2	2	60					
MW1		39.98	38.96	41.96	52.35	66.62	76.55	62.34	67.27	68.17	61.95	27.75	58.64	46.55	97.41	46.15	53.73	154.16	16.34	24.37	-0.49	2.90
MW3		37.93	34.24	40.44	48.91	61.91	73.16	59.25	64.18	65.37	59.08	25.64	56.82	46.74	95.29	44.54	50.78	151.00	16.31	23.68	-0.38	2.73
MESC	N=	4	3	1	1	1	1										11					
MW1		19.75	23.18	47.57	34.22	84.24	46.00										28.95	84.24	12.18	16.49	0.21	2.52
MW3		17.45	17.98	42.79	34.49	81.28	45.80										25.50	81.28	11.45	15.17	0.53	2.48
AV/YR	N=	101	86	89	84	71	83	80	64	55	38	23	16	21	20	20	851					
MW1		40.44	50.17	66.05	63.84	89.30	89.08	90.03	82.28	98.12	77.52	66.51	75.93	70.75	76.53	73.50	69.69					
MW3		33.51	41.97	54.94	52.92	78.18	76.63	80.84	73.12	89.18	69.61	61.84	70.05	65.85	69.71	75.63	60.56					
RANGE																						
MW1 HI		170.53	124.74	203.58	331.51	312.98	259.08	237.84	766.61	218.95	226.46	214.68	188.58	195.99	171.25	146.55		331.51				
MW1 LO		7.81	12.18	19.07	19.25	27.23	28.49	33.79	15.27	36.02	17.78	14.05	21.71	23.55	20.53	29.33			7.81			
MW3 HI		153.81	108.20	187.10	317.25	307.04	204.00	214.78	249.85	197.05	207.14	189.90	163.07	194.14	151.00	147.33		317.25				
MW3 LO		6.68	11.45	14.37	15.79	22.03	22.73	32.22	13.69	30.02	15.12	12.53	20.72	23.21	18.66	29.93			6.68			
S.D./YR																						
MW1		24.20	25.60	32.30	40.45	39.32	41.71	37.79	38.98	39.19	36.49	49.17	44.77	39.81	38.60	33.22				40.45		
MW3		21.16	23.15	27.19	36.34	37.26	38.93	33.90	34.64	36.54	36.16	47.46	42.79	38.89	36.23	31.11				37.55		
SKEWNESS																						
MW1 G1		-0.33	-0.24	-0.28	0.93	0.05	-0.39	-0.18	-0.61	-0.14	-0.76	-0.02	-0.50	-0.14	-0.67	-0.42					-0.14	
MW1 G2		2.98	2.54	3.62	2.82	3.47	2.97	3.06	4.60	2.87	4.81	2.29	2.49	2.22	3.66	2.45						2.71
MW3 G1		-0.24	-0.27	-0.19	0.66	-0.05	-0.41	-0.09	-0.60	-0.21	-0.90	-0.08	-0.43	0.11	-0.57	-0.43					-0.14	
MW3 G2		2.69	2.41	3.44	2.84	3.54	2.96	2.83	4.11	2.64	4.57	2.25	2.30	2.08	3.35	2.36						2.18

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR FIVE CITIES

RESULTS BASED ON LOG TRANSFORM

CARBON DIOXIDE IN GRAMS PER MILE

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	5	5	7	6	6	6	6	4	3	3	2	1		1		55					
	HW1	766.74	727.32	609.12	565.68	541.80	454.15	462.04	420.71	617.21	460.92	622.48	643.29		737.98		561.10	944.63	219.97	151.05	-0.83	8.60
	HW3	736.79	699.61	595.79	554.27	517.91	436.80	454.32	407.77	598.43	446.44	602.22	610.99		770.45		544.38	929.56	215.75	148.24	-0.79	8.96
CADI	N=	2	2	2	1	2	1	2	2	1	1	1	1	1		1	20					
	HW1	880.99	752.41	853.76	796.44	557.92	556.47	672.41	582.60	633.51	491.65	599.56	551.62	587.28		496.98	653.83	926.20	491.65	129.82	0.48	-2.80
	HW3	858.83	723.78	807.24	735.24	551.06	541.42	655.16	568.54	626.01	491.11	577.05	523.73	580.72		524.11	636.59	912.33	491.11	117.35	0.51	19.58
CHEV	N=	27	19	19	18	16	19	20	19	16	12	6	6	5	6	7	213					
	HW1	597.45	582.45	583.04	489.58	492.50	475.67	441.69	452.50	432.97	447.06	481.06	500.45	452.76	465.16	446.84	498.59	1555.26	263.19	119.51	1.52	-53.07
	HW3	577.87	569.11	566.91	476.57	479.71	468.19	450.93	444.79	411.17	433.18	465.75	488.18	436.49	450.15	450.75	486.76	1830.23	294.83	117.03	1.75	-51.23
CHRY	N=	2	2	4	2	2	3		1	1				1		1	19					
	HW1	822.13	620.92	675.03	556.54	483.31	412.29		524.74	643.23				690.15		695.87	590.14	963.42	246.62	167.42	-1.27	5.45
	HW3	879.55	570.74	671.86	534.14	476.43	411.17		537.37	648.96				661.26		651.43	582.12	1180.59	248.59	177.18	-0.58	5.15
DODG	N=	4	4	5	6	5	7	4	3	3	2		1	1		2	47					
	HW1	594.85	571.03	539.49	479.87	523.47	515.76	429.31	312.02	491.18	425.18		429.83	484.91		362.08	482.40	802.93	230.89	118.37	-0.68	12.51
	HW3	579.45	556.80	533.57	474.31	517.73	518.01	422.82	299.93	447.47	416.43		409.26	485.89		365.25	476.03	793.19	241.55	116.77	-0.65	11.38
FORD	N=	23	17	16	14	14	18	19	12	13	7	5	4	6	4	5	177					
	HW1	499.78	552.74	544.82	553.13	513.95	490.56	427.11	489.93	457.16	439.74	342.16	424.45	443.21	515.05	451.97	487.17	1098.91	238.18	126.61	0.78	-33.28
	HW3	482.97	538.84	527.45	536.11	506.59	472.30	414.86	473.26	446.71	432.38	326.61	427.42	435.00	497.04	437.16	473.84	1077.11	225.37	122.94	0.66	-28.21
IMPE	N=																0					
	HW1																0.0	0.0	0.0	0.0	0.0	0.0
	HW3																0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=	1	1	1		1	1										5					
	HW1	775.82	786.89	573.54		755.15	736.77										720.98	786.89	573.54	94.31	-1.98	62.73
	HW3	720.43	758.29	587.84		733.41	703.84										698.08	758.29	587.84	69.88	-2.04	121.84
MERC	N=	5	3	3	3	3	2	2	2	3	1	2	1				30					
	HW1	730.92	695.41	640.67	598.57	490.62	578.44	682.60	469.14	452.24	505.72	352.15	320.98				553.54	861.44	320.90	135.30	-0.42	4.74
	HW3	706.07	588.42	618.89	609.66	477.90	597.54	658.32	451.95	442.28	486.24	338.85	320.31				541.62	842.45	320.31	133.28	-0.46	4.61
OLDS	N=	6	7	5	8	2	6	5	6	3	3	3	1	1	3	1	58					
	HW1	755.27	694.55	572.44	628.31	576.31	539.62	488.50	557.83	536.76	377.39	566.70	651.13	429.59	594.97	694.63	584.43	963.65	174.28	150.57	-1.74	14.86
	HW3	708.65	669.37	545.30	607.28	567.53	512.33	477.28	541.06	514.91	361.39	588.68	624.91	431.28	576.85	670.10	564.14	941.11	163.11	147.42	-1.92	17.55
PLYM	N=	5	7	6	7	5	5	6	3	2	1	1	1	1	1		51					
	HW1	555.23	586.96	555.28	531.25	414.27	443.93	487.25	423.09	425.24	427.43	568.70	398.02	490.87	361.98		495.41	739.13	263.11	104.79	-0.72	20.46
	HW3	559.25	567.95	538.35	518.89	427.10	443.59	485.75	406.23	417.52	417.62	573.89	378.46	487.33	527.25		488.76	702.39	311.79	93.59	-0.61	21.39
PONT	N=	8	6	8	9	6	7	9	6	3	3	1	1	2	2	1	72					
	HW1	663.27	629.71	560.14	569.48	575.57	474.53	494.23	522.77	564.98	521.70	381.45	746.05	597.68	391.22	528.43	550.36	783.13	239.90	113.01	-1.41	20.48
	HW3	621.10	606.34	549.52	551.19	552.46	487.54	496.62	509.22	542.44	528.36	361.67	690.63	566.54	394.05	508.07	537.13	766.64	231.14	105.44	-1.62	27.23
RAMB	N=	5	4	2	3	1	3	2	4	3	2	1			1		31					
	HW1	493.91	475.69	527.05	523.86	501.21	422.83	311.41	386.46	441.31	353.82	366.53			397.12		438.06	718.69	299.36	90.18	0.42	7.02
	HW3	498.45	459.72	513.03	507.84	487.22	401.91	327.06	372.84	423.94	340.95	353.85			384.50		427.92	703.16	307.22	85.10	0.50	3.86
STUD	N=									1				1			2					
	HW1									417.13				419.50			418.32	419.50	417.13	1.64		
	HW3									397.78				402.08			399.93	402.08	397.78	2.71		
VOLK	N=	4	6	10	6	7	4	5	4	3	3	1	1	2	2	3	60					
	HW1	316.64	349.14	316.49	307.36	255.44	258.29	281.38	271.69	269.29	180.67	242.93	334.97	186.14	218.17	223.40	277.11	473.88	130.96	68.60	-0.71	9.04
	HW3	315.01	348.04	309.44	300.62	250.00	266.31	278.38	269.46	267.77	175.67	233.85	329.50	188.44	211.18	225.92	273.96	480.38	123.77	67.98	-0.77	10.37
MISC	N=	4	3	1	1	1	1										11					
	HW1	360.61	318.77	405.01	396.32	280.79	209.90										320.26	405.01	200.79	82.96	-0.98	1.27
	HW3	353.26	307.50	391.84	377.39	192.32	199.05										310.24	391.84	192.32	80.91	-1.02	1.43
AV/YR	N=	191	86	89	84	71	83	80	64	55	38	23	16	21	20	20	851					
	HW1	579.24	564.21	539.70	519.16	472.19	465.21	443.80	444.65	455.61	411.16	438.70	473.82	439.01	468.75	440.52	490.43					
	HW3	557.95	547.94	525.20	505.57	462.61	457.50	440.98	434.76	440.94	401.92	427.20	461.81	429.18	437.31	430.49	478.89					
RANGE																						
	HW1	HI	1555.26	1098.91	896.14	941.74	910.01	755.77	727.99	693.61	765.93	787.30	825.73	746.05	690.15	737.98	695.87		1555.26				
	HW1	LO	273.06	251.62	260.36	254.72	176.54	209.90	227.89	219.87	236.92	130.96	242.93	320.90	139.66	202.88	165.08			130.96			
	HW3	HI	1830.23	1077.11	831.65	803.93	835.50	760.10	747.66	673.28	690.98	732.52	892.63	690.63	661.26	770.45	670.10		1830.23				
	HW3	LO	264.81	249.48	262.71	246.23	169.21	199.05	225.37	215.75	232.21	129.77	233.85	320.31	144.70	196.21	162.35			123.77			
S.D./YR																						
	HW1		202.62	153.14	141.20	126.93	150.46	118.31	116.80	117.38	113.22	148.30	132.45	122.46	152.06	146.57	149.13			148.69		
	HW3		197.66	147.90	135.05	122.83	144.47	115.24	117.38	115.08	126.65	146.35	137.58	110.14	140.88	145.09	139.39			143.46		
SKEWNESS																						
	HW1	G1	-0.41	-0.70	-0.99	-0.85	-1.00	-0.97	-0.49	-0.94	-0.39	-1.32	0.19	0.03	-1.86	-0.81	-1.44				-0.41	
	HW1	G2	3.70	8.21	6.04	10.18	6.74	7.74	8.45	8.40	9.67	5.32	2.61	0.00	6.72	3.49	5.04					14.12
	HW3	G1	-0.15	-0.68	-1.13	-0.85	-1.09	-0.94	-0.49	-0.95	-0.39	-1.42	0.29	0.04	-1.87	-0.74	-1.52				-0.39	
	HW3	G2	4.40	7.43	12.17	9.28	7.73	12.06	8.16	6.76	9.57	5.33	1.80	-4.16	7.72	3.64	5.06					17.57

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES

SUMMARY OF EXHAUST EMISSION VALUES FOR FIVE CITIES

CORRECTED OXIDES OF NITROGEN IN GRAMS PER MILE

RESULTS BASED ON LOG TRANSFORM

		1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	AVE/MAKE	RANGE HI	RANGE LO	S.D./MAKE	SKEWNESS G1	SKEWNESS G2
BUIC	N=	5	5	7	6	6	6	6	4	3	3	2	1		1		55					
MW1		3.62	5.44	5.48	2.61	2.78	3.77	2.85	2.46	4.16	3.05	1.06	5.41		6.05		3.44	8.45	0.46	2.03	-0.78	4.16
MW3		3.76	5.67	5.68	2.96	2.66	3.81	2.75	2.39	4.31	2.79	1.06	5.10		6.13		3.46	9.38	0.48	2.05	-0.72	4.11
CADI	N=	2	2	2	1	2	1	2	2	1	1	1	1	1		1	20					
MW1		4.84	5.75	8.69	5.13	2.68	3.89	4.30	1.53	1.59	1.63	2.62	1.99	6.28		4.21	3.60	9.77	1.00	2.38	-0.23	1.96
MW3		4.87	5.60	8.22	4.17	2.78	3.74	4.86	1.51	1.38	1.72	2.36	1.80	7.64		4.42	3.57	9.38	0.99	2.43	-0.19	1.91
CHEV	N=	27	19	19	18	16	19	20	19	16	12	6	4	5	6	7	213					
MW1		4.08	4.90	5.09	3.13	3.14	3.17	2.38	3.44	3.27	3.58	3.48	3.18	2.44	2.36	2.71	3.45	10.59	0.66	1.76	-0.63	3.45
MW3		4.05	5.08	5.22	3.17	3.23	3.27	2.44	3.50	3.10	3.48	3.33	3.19	2.32	2.41	2.58	3.47	10.62	0.64	1.78	-0.67	3.46
CHRY	N=	2	2	4	2	2	3		1	1				1		1	19					
MW1		5.15	5.99	4.95	4.49	3.50	1.54		6.11	1.06				8.88		2.49	3.74	8.88	1.06	2.35	-0.75	2.61
MW3		4.93	6.09	5.45	4.37	3.73	1.83		7.91	1.13				8.81		2.65	4.00	8.81	1.13	2.42	-0.84	2.95
DODG	N=	4	4	5	6	5	7	4	3	3	2		1	1		2	47					
MW1		4.58	4.45	4.32	3.92	2.71	4.38	3.05	1.62	2.12	2.21		1.55	6.67		2.32	3.35	9.94	0.60	2.26	-0.58	2.81
MW3		4.61	4.49	4.76	4.10	3.04	5.07	3.57	1.85	2.43	2.15		1.42	7.19		2.43	3.63	10.40	0.67	2.37	-0.70	2.98
FORD	N=	23	17	16	14	14	18	19	12	13	7	5	4	6	4	5	177					
MW1		5.20	5.23	5.77	4.73	2.45	3.38	3.10	3.62	3.16	2.34	1.87	3.79	3.93	3.34	4.51	3.82	9.50	0.43	2.13	-0.99	4.64
MW3		5.21	5.34	6.05	4.93	2.50	3.31	3.09	3.71	3.27	2.65	1.71	3.69	3.81	3.28	4.24	3.87	9.52	0.41	2.17	-1.03	4.84
IMPE	N=																0					
MW1																	0.0	0.0	0.0	0.0	0.0	0.0
MW3																	0.0	0.0	0.0	0.0	0.0	0.0
LINC	N=	1	1	1		1	1										5					
MW1		3.12	6.79	5.41		6.00	4.27										4.94	6.79	3.12	1.53	-0.56	1.98
MW3		2.92	7.46	5.56		6.25	4.29										5.04	7.46	2.92	1.86	-0.54	2.03
MERC	N=	5	3	3	3	3	2	2	2	3	1	2	1				30					
MW1		5.33	4.26	5.76	7.13	3.32	2.82	2.68	1.68	4.04	3.97	2.45	6.31				4.02	8.99	0.66	2.15	-1.16	5.68
MW3		5.79	4.71	5.90	7.20	3.39	3.23	2.76	1.69	4.67	3.85	2.43	7.65				4.28	8.81	0.67	2.29	-1.37	6.10
OLDS	N=	6	7	5	8	2	4	3	4	3	3	3	1	1	3	1	58					
MW1		4.94	3.47	5.08	3.67	4.49	2.97	2.61	5.41	3.82	3.02	2.28	5.10	4.15	6.60	5.98	3.86	9.75	0.87	1.82	-0.91	4.02
MW3		4.86	3.62	5.09	3.83	4.52	3.04	2.76	5.39	3.72	2.97	2.16	5.20	4.09	6.32	5.99	3.89	8.66	0.82	1.82	-1.18	4.84
PLYM	N=	5	7	6	7	5	5	6	3	2	1	1	1	1	1		51					
MW1		5.58	5.40	5.77	4.86	2.98	1.73	3.65	4.10	3.69	3.52	11.14	0.86	7.12	2.85		4.05	11.14	0.31	2.70	-1.59	6.72
MW3		5.64	5.33	6.11	5.01	3.38	2.26	4.05	4.35	3.66	3.75	11.59	0.78	8.18	2.81		4.33	11.59	0.53	2.62	-1.29	5.56
PONT	N=	8	6	8	9	6	7	9	6	3	3	1	1	2	2	1	72					
MW1		4.30	3.71	4.44	3.24	4.45	3.28	3.84	3.62	3.93	4.18	2.09	7.79	4.00	2.73	2.78	3.81	8.74	0.95	1.66	-0.46	3.20
MW3		4.57	4.11	4.64	3.39	4.32	3.33	3.92	3.54	3.74	3.93	2.12	6.86	3.68	2.74	2.82	3.87	8.80	0.83	1.77	-0.72	3.78
RAMB	N=	5	4	2	3	1	3	2	4	3	2	1					31					
MW1		3.39	4.80	3.52	6.01	4.84	2.11	1.02	3.16	2.88	4.51	3.49			1		3.35	7.54	0.55	1.78	-1.39	6.18
MW3		3.51	4.78	3.51	6.43	4.80	1.98	1.05	3.03	2.61	4.39	3.77			3.48		3.32	7.22	0.49	1.85	-1.39	6.23
STUD	N=														3.32		2					
MW1										1				1			3.79	6.35	2.26	2.83	0.00	1.01
MW3										2.26				6.35			3.48	5.79	2.09	2.56	0.00	1.01
VOLK	N=	4	6	10	6	7	4	5	4	2.09				5.79			60					
MW1		2.20	3.20	2.98	2.31	2.09	1.83	2.96	2.27	3	3	1	1	2	2	2	2.30	7.93	0.46	1.15	-0.48	4.83
MW3		2.18	3.10	2.80	2.17	1.94	1.74	3.02	2.25	2.04	1.35	2.68	2.16	1.59	0.85	2.91	2.21	7.86	0.42	1.14	-0.45	5.16
MISC	N=	4	3	1	1	1	1			2.03	1.29	2.51	2.12	1.53	0.80	2.92	11					
MW1		5.27	4.64	8.05	6.01	1.04	1.64										4.16	8.05	1.04	2.72	-1.11	3.16
MW3		5.51	4.61	8.25	5.92	0.96	1.54										4.17	8.25	0.96	2.90	-1.19	3.09
AV/YR	N=	101	86	89	84	71	83	80	64	55	38	23	16	21	20	20	851					
MW1		4.42	4.66	4.93	3.76	2.92	3.00	2.88	3.19	3.08	2.93	2.53	3.26	3.71	2.92	3.24	3.55					
MW3		4.47	4.79	5.07	3.85	2.97	3.12	2.97	3.25	3.08	2.92	2.43	3.19	3.64	2.89	3.17	3.60					
RANGE																						
MW1 HI		8.99	9.31	10.03	9.43	6.79	9.94	8.99	8.24	10.59	6.96	11.14	8.13	8.88	9.75	8.94		11.14				
MW1 LO		1.45	1.82	1.76	0.46	0.43	0.31	0.55	0.66	0.66	0.54	0.48	0.86	0.77	0.46	0.60			0.31			
MW3 HI		8.88	9.66	10.23	8.99	6.89	10.40	9.11	8.38	10.62	6.93	11.59	8.05	8.81	8.66	8.88		11.59				
MW3 LO		1.66	2.09	1.66	0.48	0.41	0.53	0.49	0.67	0.64	0.48	0.43	0.78	0.69	0.42	0.67			0.41			
S.D./YR																				1.98		
MW1		1.75	1.60	2.01	1.99	1.53	1.65	1.55	1.72	1.86	1.66	1.75	2.20	2.62	2.28	2.27				2.09		
MW3		1.80	1.62	2.04	2.10	1.53	1.69	1.60	1.71	1.87	1.67	1.77	2.29	2.73	2.22	2.22						
SKEWNESS																					-0.80	
MW1 G1		-0.52	-0.18	-0.39	-1.21	-0.93	-1.02	-0.45	-0.70	-0.19	-0.84	-0.28	-0.23	-0.73	-0.60	-0.82						4.06
MW1 G2		3.12	2.43	2.65	4.91	4.30	5.71	3.48	3.65	2.82	3.59	3.43	2.10	2.40	3.05	3.76					-0.79	
MW3 G1		-0.52	-0.13	-0.48	-1.10	-0.92	-0.62	-0.64	-0.56	-0.29	-0.93	-0.28	-0.23	-0.68	-0.67	-0.68						3.95
MW3 G2		3.17	2.35	2.89	4.94	4.68	79	3.99	3.50	2.80	4.12	3.50	2.03	2.36	3.31	2.71						

3.2 FEDERAL TEST PROCEDURE RESULTS BY MANUFACTURER AND CITY

This section contains the results from the 1972 and 1975 Federal exhaust emission tests, presented by each major manufacturer (General Motors, Ford, Chrysler, American Motors and Volkswagen) for each city and all cities combined, excluding Denver. The results include the mean, standard deviation, and number of tests for hydrocarbons, carbon monoxide, carbon dioxide and oxides of nitrogen. Emission levels for all cities except Denver among General Motors, Ford and Chrysler are relatively uniform. American Motors does, however, exhibit a lower mass emission level for all effluents, reflecting the somewhat smaller engines and vehicles used by that company. Volkswagen also exhibits lower effluent values except for hydrocarbons. Results by manufacturer for each city exhibit less definitive trends, except for American Motors and Volkswagen.

FEDERAL TEST PROCEDURE RESULTS BY MANUFACTURER AND CITY
FIVE CITIES EXCLUDING DENVER

MANUFACTURER	-----HC----- MEAN	S.D.	-----CO----- MEAN	S.D.	----CO2------ MEAN	S.D.	----NOXC----- MEAN	S.D.
GM	N= 418		N= 418		N= 418		N= 418	
MW1	7.76	7.0	86.73	46.2	550.13	139.04	3.99	1.8
MW3	7.02	6.7	77.35	44.5	535.68	138.77	4.03	1.8
FORD	N= 212		N= 212		N= 212		N= 212	
MW1	7.48	8.0	75.02	41.0	518.36	137.96	4.37	2.0
MW3	6.83	7.4	66.43	39.1	504.45	133.50	4.47	2.0
CHRY	N= 117		N= 117		N= 117		N= 117	
MW1	7.24	5.4	90.86	49.4	518.94	122.3	4.39	2.3
MW3	6.22	4.9	76.06	43.0	512.03	125.7	4.65	2.3
AMER	N= 31		N= 31		N= 31		N= 31	
MW1	6.46	6.6	69.97	42.9	447.31	95.7	3.72	1.6
MW3	5.87	6.4	65.09	43.2	436.38	90.8	3.72	1.7
VW	N= 60		N= 60		N= 60		N= 60	
MW1	7.76	8.0	58.92	25.0	285.12	66.8	2.57	1.3
MW3	7.32	7.9	56.05	24.9	281.89	66.0	2.49	1.3

FEDERAL TEST PROCEDURE RESULTS BY MANUFACTURER AND CITY
LOS ANGELES

MANUFACTURER	-----HC----- MEAN	S.D.	-----CO----- MEAN	S.D.	----CO2------ MEAN	S.D.	----NOXC----- MEAN	S.D.
GM	N=	87	N=	87	N=	87	N=	87
MW1	8.01	6.9	91.72	40.3	563.85	133.8	3.54	1.7
MW3	7.13	6.7	77.63	38.3	551.02	127.1	3.61	1.7
FORD	N=	46	N=	46	N=	46	N=	46
MW1	8.66	9.6	89.03	48.9	525.42	122.6	3.54	1.5
MW3	8.01	9.1	79.18	47.1	511.43	121.9	3.55	1.5
CHRY	N=	20	N=	20	N=	20	N=	20
MW1	6.21	3.6	78.12	32.6	554.41	178.0	4.25	2.2
MW3	5.13	3.1	61.83	29.3	554.69	204.7	4.51	2.3
AMER	N=	6	N=	6	N=	6	N=	6
MW1	10.47	12.9	83.53	52.7	488.20	137.8	3.85	2.2
MW3	9.75	12.9	74.14	56.5	470.48	137.4	3.77	2.2
VW	N=	13	N=	13	N=	13	N=	13
MW1	10.74	14.1	60.07	26.3	306.38	42.8	2.65	1.0
MW3	9.96	13.8	57.18	26.9	301.02	42.8	2.52	.9

DENVER

MANUFACTURER	-----HC----- MEAN	S.D.	-----CO----- MEAN	S.D.	----CO2------ MEAN	S.D.	----NOXC----- MEAN	S.D.
GM	N=	81	N=	81	N=	81	N=	81
MW1	9.99	6.5	125.62	55.5	517.85	112.1	2.29	1.3
MW3	8.76	5.9	112.59	50.1	499.41	103.8	2.27	1.3
FORD	N=	43	N=	43	N=	43	N=	43
MW1	9.64	4.1	118.92	55.7	496.30	95.2	2.74	1.2
MW3	8.63	3.6	110.40	52.2	479.19	92.2	2.68	1.3
CHRY	N=	22	N=	22	N=	22	N=	22
MW1	11.63	5.7	157.09	59.6	462.70	83.3	1.99	1.0
MW3	9.76	5.0	134.48	46.8	451.38	79.7	2.04	1.0
AMER	N=	7	N=	7	N=	7	N=	7
MW1	10.74	3.0	140.13	28.8	345.34	48.0	1.16	.5
MW3	9.36	3.3	134.44	30.0	327.83	43.1	1.11	.5
VW	N=	12	N=	12	N=	12	N=	12
MW1	6.63	2.5	76.28	19.6	259.95	47.9	1.21	.4
MW3	5.91	2.3	74.18	22.1	252.80	46.4	1.12	.4

FEDERAL TEST PROCEDURE RESULTS BY MANUFACTURER AND CITY
CHICAGO

MANUFACTURER	-----H C----- MEAN	S.D.	-----C O----- MEAN	S.D.	----CO2------ MEAN	S.D.	----NOXC----- MEAN	S.D.
GM	N= 88		N= 88		N= 88		N= 88	
MW1	7.94	9.2	74.96	38.5	496.10	122.0	3.60	1.4
MW3	7.25	8.8	68.31	37.3	486.62	118.0	3.65	1.4
FORD	N= 38		N= 38		N= 38		N= 38	
MW1	7.51	11.2	71.03	37.4	541.02	150.8	4.23	1.9
MW3	6.73	10.2	61.40	34.9	527.06	143.4	4.35	1.9
CHRY	N= 23		N= 23		N= 23		N= 23	
MW1	7.36	3.4	92.91	51.4	487.98	105.5	3.43	1.5
MW3	5.95	2.2	73.19	34.4	488.48	96.4	3.74	1.4
AMER	N= 6		N= 6		N= 6		N= 6	
MW1	4.02	2.0	70.47	58.0	410.33	64.4	2.34	.9
MW3	3.54	1.7	67.86	54.6	409.72	47.5	2.40	.9
VW	N= 13		N= 13		N= 13		N= 13	
MW1	7.69	5.3	60.26	34.6	269.59	69.9	2.00	.7
MW3	7.65	6.2	58.34	34.5	269.93	76.5	1.95	.7

HOUSTON

MANUFACTURER	-----H C----- MEAN	S.D.	-----C O----- MEAN	S.D.	----CO2------ MEAN	S.D.	----NOXC----- MEAN	S.D.
GM	N= 82		N= 82		N= 82		N= 82	
MW1	7.74	7.4	97.38	58.1	589.02	171.6	4.20	1.9
MW3	7.06	7.3	90.12	55.6	570.25	185.8	4.18	1.9
FORD	N= 45		N= 45		N= 45		N= 45	
MW1	7.68	6.9	76.45	33.6	546.82	157.9	4.80	2.1
MW3	7.01	6.1	70.12	32.2	529.68	151.9	4.85	2.2
CHRY	N= 21		N= 21		N= 21		N= 21	
MW1	8.09	6.9	111.10	54.2	535.95	128.2	4.39	2.3
MW3	7.29	6.4	103.66	54.2	515.99	126.9	4.46	2.3
AMER	N= 3		N= 3		N= 3		N= 3	
MW1	5.79	.1	87.45	17.9	352.29	12.3	3.18	.6
MW3	5.52	.0	85.54	16.3	337.79	13.7	2.96	.6
VW	N= 12		N= 12		N= 12		N= 12	
MW1	7.60	8.1	60.41	24.1	284.87	78.2	2.82	1.9
MW3	6.95	7.6	56.45	23.1	279.90	70.7	2.66	1.8

FEDERAL TEST PROCEDURE RESULTS BY MANUFACTURER AND CITY
ST. LOUIS

MANUFACTURER	-----H C----- MEAN	S.D.	-----C O----- MEAN	S.D.	----CO2------ MEAN	S.D.	----NOXC----- MEAN	S.D.
GM	N=	81	N=	81	N=	81	N=	81
MW1	8.31	6.1	90.18	42.5	516.01	100.8	3.59	1.6
MW3	7.55	5.7	81.39	42.0	501.18	101.1	3.63	1.6
FORD	N=	45	N=	45	N=	45	N=	45
MW1	6.81	5.1	76.13	45.2	474.79	123.6	4.12	1.7
MW3	6.19	4.9	66.71	43.1	462.58	120.9	4.26	1.7
CHRY	N=	25	N=	25	N=	25	N=	25
MW1	7.95	5.2	96.67	44.2	491.00	92.2	3.41	1.8
MW3	7.02	4.9	83.49	37.4	480.62	91.9	3.62	1.9
AMER	N=	7	N=	7	N=	7	N=	7
MW1	5.36	5.1	45.00	16.1	488.02	82.9	4.44	1.7
MW3	4.90	4.8	42.82	27.0	473.95	79.6	4.52	1.6
VW	N=	11	N=	11	N=	11	N=	11
MW1	6.31	3.5	62.79	20.3	239.88	58.9	1.83	.5
MW3	5.96	3.2	60.02	19.6	237.35	58.2	1.75	.4

WASHINGTON, D. C.

MANUFACTURER	-----H C----- MEAN	S.D.	-----C O----- MEAN	S.D.	----CO2------ MEAN	S.D.	----NOXC----- MEAN	S.D.
GM	N=	80	N=	80	N=	80	N=	80
MW1	6.75	4.1	79.86	47.1	589.31	133.8	5.10	2.1
MW3	6.10	3.9	69.80	45.1	572.45	127.3	5.16	2.1
FORD	N=	38	N=	38	N=	38	N=	38
MW1	6.57	5.9	59.05	31.1	505.08	124.9	5.32	2.3
MW3	6.03	5.5	51.34	29.4	493.06	120.5	5.48	2.4
CHRY	N=	28	N=	28	N=	28	N=	28
MW1	6.63	6.7	77.91	54.8	531.23	101.4	6.15	2.4
MW3	5.70	6.2	61.26	44.0	525.98	92.1	6.55	2.4
AMER	N=	9	N=	9	N=	9	N=	9
MW1	6.49	4.6	74.20	44.5	444.71	86.9	4.19	1.3
MW3	5.71	3.7	67.71	43.2	435.08	81.3	4.21	1.5
VW	N=	11	N=	11	N=	11	N=	11
MW1	5.95	2.2	50.50	16.6	323.97	57.1	3.62	1.4
MW3	5.59	2.1	47.58	16.7	320.12	56.3	3.66	1.7

3.3.1 Federal Test Procedure Results by Vehicle Weight and City

The results of the 1972 (MW 1) and 1975 (MW 3) Federal test results presented in this section are displayed by vehicle weight class. The weight class for each vehicle was determined from the equivalent inertia assigned to each vehicle as stipulated in the Federal Test Procedures. Hydrocarbons and carbon monoxide for the five cities excluding Denver exhibit a slight upward trend with increasing vehicle weight. The higher hydrocarbon values in the 1501-2000 pound class appear to be typical of small engined vehicles. There is a clearly defined trend of increasing carbon dioxide and oxides of nitrogen levels with increasing vehicle weight.

FEDERAL TEST PROCEDURE RESULTS BY VEHICLE WEIGHT AND CITY
FIVE CITIES EXCLUDING DENVER

	-----HC-----		-----CO-----		----CO2------		----NOXC-----	
CAR WEIGHT	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
1501-2000	N= 54		N= 54		N= 54		N= 54	
MW1	7.12	5.2	55.41	23.4	277.14	60.9	2.62	1.5
MW3	6.70	5.2	52.53	23.3	272.90	57.7	2.53	1.5
2001-2500	N= 33		N= 33		N= 33		N= 33	
MW1	3.98	2.7	46.22	28.3	342.30	65.1	3.76	1.9
MW3	3.67	2.6	42.31	28.7	332.27	60.7	3.76	2.0
2501-3000	N= 132		N= 132		N= 132		N= 132	
MW1	7.10	7.7	71.31	37.7	422.27	80.2	3.82	1.8
MW3	6.35	7.4	62.51	36.8	410.82	76.2	3.89	1.8
3001-3500	N= 192		N= 192		N= 192		N= 192	
MW1	7.60	7.4	83.19	42.9	501.05	91.9	3.92	1.8
MW3	6.88	6.9	73.70	40.6	487.34	88.3	4.00	1.9
3501-4000	N= 263		N= 263		N= 263		N= 263	
MW1	8.76	8.2	90.75	50.2	549.06	124.7	3.99	2.0
MW3	7.91	7.7	80.33	47.1	536.68	116.3	4.09	2.0
4001-4500	N= 141		N= 141		N= 141		N= 141	
MW1	6.64	3.9	85.01	42.7	621.95	117.2	4.90	2.0
MW3	5.96	3.7	74.48	40.1	605.15	111.9	4.99	2.0
4501-5000	N= 31		N= 31		N= 31		N= 31	
MW1	7.00	8.8	94.60	51.2	719.88	201.2	4.77	2.2
MW3	6.39	8.5	84.81	48.8	716.45	252.0	4.85	2.4
5001-5500	N= 5		N= 5		N= 5		N= 5	
MW1	6.64	3.6	75.66	41.6	675.52	134.0	5.93	2.3
MW3	5.69	3.4	64.40	37.6	666.54	107.3	5.98	2.1

FEDERAL TEST PROCEDURE RESULTS BY VEHICLE WEIGHT AND CITY
LOS ANGELES

	-----H C-----		-----C O-----		----CO2------		----NOXC----	
CAR WEIGHT	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
1501-2000	N= 13		N= 13		N= 13		N= 13	
MW1	7.79	4.3	64.65	23.4	295.63	47.6	2.43	1.0
MW3	7.02	3.9	60.89	24.8	289.65	47.9	2.30	.9
2001-2500	N= 5		N= 5		N= 5		N= 5	
MW1	2.73	.2	39.68	16.5	335.96	43.0	4.13	1.7
MW3	2.49	.3	34.09	13.1	327.33	41.5	4.08	1.7
2501-3000	N= 38		N= 38		N= 38		N= 38	
MW1	9.87	12.8	79.24	43.7	476.71	83.6	3.52	1.6
MW3	8.94	12.3	69.30	41.9	461.84	82.0	3.53	1.6
3001-3500	N= 44		N= 44		N= 44		N= 44	
MW1	9.27	9.9	93.29	43.5	550.57	100.2	3.62	1.8
MW3	8.38	9.7	77.55	42.6	536.25	97.0	3.74	1.8
3501-4000	N= 50		N= 50		N= 50		N= 50	
MW1	7.64	4.7	92.57	40.8	557.00	153.5	3.32	1.8
MW3	6.83	4.4	79.33	38.9	544.89	147.4	3.40	1.8
4001-4500	N= 17		N= 17		N= 17		N= 17	
MW1	6.71	2.5	93.86	46.2	627.15	121.9	4.25	1.5
MW3	6.08	2.7	81.31	43.6	619.35	109.8	4.31	1.4
4501-5000	N= 6		N= 6		N= 6		N= 6	
MW1	6.05	2.3	97.61	36.0	765.75	156.3	4.72	2.5
MW3	5.29	2.4	86.06	38.9	779.40	227.0	4.63	2.6
5001-5500	N= 2		N= 2		N= 2		N= 2	
MW1	8.73	5.2	84.09	37.2	626.06	182.6	5.10	1.3
MW3	7.56	5.3	75.68	38.9	628.76	148.0	5.33	1.3

DENVER

	-----H C-----		-----C O-----		----CO2------		----NOXC-----	
CAR WEIGHT	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
1501-2000	N= 12		N= 12		N= 12		N= 12	
MW1	6.89	2.0	79.97	14.5	261.11	48.3	1.31	.4
MW3	6.16	1.9	78.12	16.9	252.41	46.3	1.19	.4
2001-2500	N= 5		N= 5		N= 5		N= 5	
MW1	5.12	3.4	48.18	17.0	341.68	48.8	2.26	1.3
MW3	5.11	3.6	48.15	19.3	330.90	47.5	2.14	1.3
2501-3000	N= 23		N= 23		N= 23		N= 23	
MW1	8.77	3.2	116.44	37.5	389.69	72.5	1.94	1.1
MW3	7.67	3.3	106.52	37.7	375.50	71.0	1.94	1.1
3001-3500	N= 48		N= 48		N= 48		N= 48	
MW1	9.71	4.1	113.36	47.3	470.89	78.2	2.35	1.3
MW3	8.57	3.7	103.00	42.9	456.19	78.1	2.31	1.3
3501-4000	N= 56		N= 56		N= 56		N= 56	
MW1	11.36	7.4	141.19	63.1	518.63	92.4	2.41	1.4
MW3	9.89	6.7	124.24	52.2	501.33	78.4	2.37	1.3
4001-4500	N= 19		N= 19		N= 19		N= 19	
MW1	10.82	5.8	152.51	61.1	568.04	85.9	2.40	1.1
MW3	9.32	4.9	140.61	60.3	546.12	87.3	2.42	1.1
4501-5000	N= 4		N= 4		N= 4		N= 4	
MW1	5.90	1.6	119.44	44.5	672.34	83.2	2.60	.6
MW3	5.34	1.5	108.16	45.9	643.26	84.5	2.67	.5
5001-5500	N= 2		N= 2		N= 2		N= 2	
MW1	5.88	1.6	165.83	22.8	780.90	73.5	2.28	.9
MW3	5.04	1.9	155.20	30.8	756.49	57.6	2.32	1.2

FEDERAL TEST PROCEDURE RESULTS BY VEHICLE WEIGHT AND CITY
CHICAGO

CAR WEIGHT	-----H C----- MEAN	S.D.	-----C O----- MEAN	S.D.	----CO2------ MEAN	S.D.	----NOXC----- MEAN	S.D.
1501-2000	N= 10		N= 10		N= 10		N= 10	
MW1	7.83	5.5	50.40	23.6	260.54	51.0	2.18	.7
MW3	7.92	6.6	48.30	24.9	257.54	46.9	2.09	.6
2001-2500	N= 8		N= 8		N= 8		N= 8	
MW1	4.32	4.0	55.69	42.4	332.98	79.0	2.13	.8
MW3	4.05	3.9	52.87	42.1	330.28	86.8	2.10	.9
2501-3000	N= 18		N= 18		N= 18		N= 18	
MW1	5.25	2.3	70.36	34.4	392.06	68.5	3.59	2.2
MW3	4.48	2.0	62.58	32.3	384.36	54.6	3.66	2.1
3001-3500	N= 38		N= 38		N= 38		N= 38	
MW1	7.67	11.1	67.02	29.4	454.67	87.7	3.52	1.3
MW3	6.91	10.1	63.03	30.7	444.03	84.8	3.59	1.3
3501-4000	N= 55		N= 55		N= 55		N= 55	
MW1	8.93	9.0	86.91	49.1	500.02	109.5	3.39	1.5
MW3	7.92	8.5	74.50	41.9	497.18	103.2	3.53	1.4
4001-4500	N= 30		N= 30		N= 30		N= 30	
MW1	6.37	5.6	75.92	33.9	608.14	126.8	4.35	1.4
MW3	5.68	5.1	63.97	28.8	592.37	120.5	4.45	1.3
4501-5000	N= 9		N= 9		N= 9		N= 9	
MW1	10.35	16.1	87.76	59.4	649.70	110.4	4.54	1.7
MW3	9.75	15.4	81.02	56.5	631.89	100.6	4.71	2.0
5001-5500	N= 1		N= 1		N= 1		N= 1	
MW1	5.70	.0	61.47	.0	573.54	.0	5.41	.0
MW3	4.20	.0	41.44	.0	587.84	.0	5.56	.0

HOUSTON

CAR WEIGHT	-----H C----- MEAN	S.D.	-----C O----- MEAN	S.D.	----CO2------ MEAN	S.D.	----NOXC----- MEAN	S.D.
1501-2000	N= 11		N= 11		N= 11		N= 11	
MW1	7.55	8.5	58.16	23.9	283.80	81.9	2.87	1.9
MW3	6.98	8.0	54.31	22.9	278.67	74.0	2.71	1.9
2001-2500	N= 9		N= 9		N= 9		N= 9	
MW1	4.76	3.1	46.06	28.8	350.50	46.5	4.55	2.2
MW3	4.42	3.0	43.15	29.6	339.88	42.1	4.62	2.4
2501-3000	N= 20		N= 20		N= 20		N= 20	
MW1	6.09	2.3	75.38	30.1	420.04	79.1	4.20	1.9
MW3	5.45	2.1	68.96	30.2	404.17	73.3	4.17	1.8
3001-3500	N= 35		N= 35		N= 35		N= 35	
MW1	6.83	3.3	89.29	43.7	508.44	89.8	4.35	2.0
MW3	6.23	3.0	83.30	43.3	496.81	87.0	4.35	2.0
3501-4000	N= 58		N= 58		N= 58		N= 58	
MW1	9.81	10.4	107.38	63.5	579.51	138.1	3.98	1.9
MW3	8.97	10.0	99.57	61.3	562.76	124.2	4.04	1.9
4001-4500	N= 30		N= 30		N= 30		N= 30	
MW1	6.38	3.4	85.85	43.1	652.17	135.1	5.25	2.1
MW3	5.77	3.2	79.90	40.3	626.27	125.5	5.26	2.1
4501-5000	N= 5		N= 5		N= 5		N= 5	
MW1	4.31	1.6	76.67	43.9	902.65	369.4	6.17	1.8
MW3	3.95	1.5	70.42	39.7	924.08	509.8	6.02	2.0
5001-5500	N= 1		N= 1		N= 1		N= 1	
MW1	7.40	.0	125.35	.0	736.77	.0	4.27	.0
MW3	6.54	.0	105.54	.0	703.84	.0	4.29	.0

FEDERAL TEST PROCEDURE RESULTS BY VEHICLE WEIGHT AND CITY
ST. LOUIS

CAR WEIGHT	-----H C----- MEAN	S.D.	-----C O----- MEAN	S.D.	----CO2------ MEAN	S.D.	----NOXC----- MEAN	S.D.
0000-2000	N= 9		N= 9		N= 9		N= 9	
MW1	6.59	3.8	59.40	20.5	241.94	59.9	1.84	.5
MW3	6.24	3.4	56.59	19.7	240.36	58.6	1.78	.5
2001-2500	N= 5		N= 5		N= 5		N= 5	
MW1	3.71	1.3	54.35	22.8	328.38	121.8	3.08	1.5
MW3	3.43	1.3	48.42	26.4	304.32	91.6	3.05	1.6
2501-3000	N= 26		N= 26		N= 26		N= 26	
MW1	6.76	5.2	69.87	38.7	366.35	59.0	3.59	1.8
MW3	6.34	5.5	63.58	39.9	352.42	57.0	3.63	1.9
3001-3500	N= 39		N= 39		N= 39		N= 39	
MW1	7.46	4.3	81.91	39.4	473.04	64.8	3.39	1.3
MW3	6.72	4.0	71.38	35.7	465.38	61.0	3.51	1.3
3501-4000	N= 53		N= 53		N= 53		N= 53	
MW1	8.72	7.5	87.49	44.0	543.45	94.0	3.92	1.7
MW3	7.78	6.8	78.23	41.1	527.89	90.9	4.01	1.7
4001-4500	N= 34		N= 34		N= 34		N= 34	
MW1	7.72	3.8	98.57	48.2	557.69	76.9	4.13	1.8
MW3	7.03	3.9	88.06	47.8	543.95	85.6	4.28	2.0
4501-5000	N= 3		N= 3		N= 3		N= 3	
MW1	5.44	3.5	114.75	60.6	644.94	167.3	2.37	.7
MW3	4.60	2.9	104.43	52.6	628.51	155.9	2.28	.5
5001-5500	N=		N=		N=		N=	
MW1	.00	.0	.00	.0	.00	.0	.00	.0
MW3	.00	.0	.00	.0	.00	.0	.00	.0

WASHINGTON

CAR WEIGHT	-----H C----- MEAN	S.D.	-----C O----- MEAN	S.D.	----CO2------ MEAN	S.D.	----NOXC----- MEAN	S.D.
0000-2000	N= 11		N= 11		N= 11		N= 11	
MW1	5.69	2.5	43.03	22.3	292.51	53.7	3.66	1.9
MW3	5.32	2.5	41.37	22.0	287.92	53.6	3.63	2.1
2001-2500	N= 6		N= 6		N= 6		N= 6	
MW1	3.61	1.6	32.07	12.8	359.30	27.3	5.01	1.8
MW3	3.22	1.4	28.73	13.7	350.93	27.4	5.01	1.8
2501-3000	N= 30		N= 30		N= 30		N= 30	
MW1	5.67	3.5	50.35	34.5	421.42	55.2	4.27	1.7
MW3	4.81	3.1	48.63	31.7	417.13	50.8	4.50	1.8
3001-3500	N= 36		N= 36		N= 36		N= 36	
MW1	6.40	3.2	83.36	53.1	512.62	89.3	4.89	2.2
MW3	5.81	3.0	73.43	48.0	497.59	79.5	4.95	2.3
3501-4000	N= 47		N= 47		N= 47		N= 47	
MW1	8.51	7.7	76.45	44.3	566.77	106.0	5.49	2.2
MW3	7.84	7.3	66.86	41.2	551.90	99.3	5.64	2.3
4001-4500	N= 30		N= 30		N= 30		N= 30	
MW1	5.89	2.8	72.87	38.5	675.43	90.1	6.34	1.9
MW3	5.17	2.3	61.32	33.0	658.14	84.8	6.47	1.9
4501-5000	N= 8		N= 8		N= 8		N= 9	
MW1	6.21	2.9	103.70	59.5	678.28	140.7	5.08	2.7
MW3	5.65	2.7	89.79	58.6	667.57	137.3	5.43	2.9
5001-5500	N= 1		N= 1		N= 1		N= 1	
MW1	2.66	.0	23.31	.0	815.17	.0	9.77	.0
MW3	2.58	.0	23.69	.0	783.54	.0	9.38	.0

3.3.2 Federal Test Procedure Results by Transmission and City

This section summarizes 1972 and 1975 Federal Test Procedure results (MW 1 and MW 3 respectively) sorted by automatic (coded 0) and manual (coded 3 & 4) transmission vehicles. A large difference in mass emission levels between the transmission types exists for CO, CO_2 and NO_xC. However, this difference may be representative of the small displacement engine vehicles which comprise a major portion of the 180 vehicles with 3 or 4 speed manual transmissions.

FEDERAL TEST PROCEDURE RESULTS BY TRANSMISSION AND CITY
FIVE CITIES EXCLUDING DENVER

	-----HC-----		-----CO-----		----CO2------		----NOXC-----	
TRANSMISSION	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
C	N=	671	N=	671	N=	671	N=	671
MW1	7.23	6.9	83.39	45.8	551.01	133.4	4.34	1.9
MW3	6.49	6.5	72.94	43.0	537.31	133.1	4.44	2.0
3&4	N=	180	N=	180	N=	180	N=	180
MW1	8.60	7.5	72.83	40.7	368.17	104.6	2.92	1.5
MW3	7.95	7.3	68.16	39.1	361.00	100.7	2.91	1.6

FEDERAL TEST PROCEDURE RESULTS BY TRANSMISSION AND CITY
LOS ANGELES

TRANSMISSION	HC MEAN	HC S.D.	CO MEAN	CO S.D.	CO2 MEAN	CO2 S.D.	NOXC MEAN	NOXC S.D.
C	N= 145		N= 145		N= 145		N= 145	
MW1	7.93	8.0	89.15	42.9	558.98	137.1	3.74	1.8
MW3	7.10	7.7	75.79	41.1	546.87	139.1	3.80	1.8
3&4	N= 30		N= 30		N= 30		N= 30	
MW1	9.95	9.8	73.55	35.9	372.31	97.4	2.68	1.3
MW3	9.15	9.5	67.86	34.7	365.29	94.6	2.64	1.2

DENVER

TRANSMISSION	HC MEAN	HC S.D.	CO MEAN	CO S.D.	CO2 MEAN	CO2 S.D.	NOXC MEAN	NOXC S.D.
C	N= 128		N= 128		N= 128		N= 128	
MW1	9.45	5.1	130.43	57.5	537.75	106.7	2.45	1.3
MW3	8.16	4.4	116.26	50.4	490.44	99.2	2.44	1.2
3&4	N= 41		N= 41		N= 41		N= 41	
MW1	10.81	6.8	103.38	45.6	378.11	113.9	1.60	.9
MW3	9.87	6.5	99.10	44.4	365.31	112.4	1.52	.9

CHICAGO

TRANSMISSION	HC MEAN	HC S.D.	CO MEAN	CO S.D.	CO2 MEAN	CO2 S.D.	NOXC MEAN	NOXC S.D.
C	N= 138		N= 138		N= 138		N= 138	
MW1	7.33	9.2	75.24	41.7	514.33	125.2	3.87	1.5
MW3	6.52	8.6	65.68	37.0	504.43	119.9	3.98	1.5
3&4	N= 31		N= 31		N= 31		N= 31	
MW1	8.68	6.2	73.80	38.8	348.15	114.9	2.15	1.2
MW3	8.15	6.2	69.39	36.1	348.03	112.2	2.14	1.1

FEDERAL TEST PROCEDURE RESULTS BY TRANSMISSION AND CITY

HOUSTON

TRANSMISSION	-----H C----- MEAN	S.D.	-----C O----- MEAN	S.D.	----CO2------ MEAN	S.D.	----NOXC----- MEAN	S.D.
0	N= 132		N= 132		N= 132		N= 132	
MW1	7.10	5.7	91.47	50.9	584.89	161.1	4.61	2.0
MW3	6.41	5.1	84.13	48.9	566.55	168.5	4.04	2.0
3&4	N= 37		N= 37		N= 37		N= 37	
MW1	9.14	10.6	79.06	51.4	370.10	105.0	3.33	1.8
MW3	8.57	10.6	75.01	50.0	357.12	98.6	3.27	1.9

ST. LOUIS

TRANSMISSION	-----H C----- MEAN	S.D.	-----C O----- MEAN	S.D.	----CO2------ MEAN	S.D.	----NOXC----- MEAN	S.D.
0	N= 122		N= 122		N= 122		N= 122	
MW1	7.30	5.5	36.67	44.7	523.46	97.7	4.01	1.7
MW3	6.61	5.3	76.32	42.6	509.88	97.4	4.12	1.7
3&4	N= 47		N= 47		N= 47		N= 47	
MW1	8.41	5.6	76.15	38.3	375.12	114.8	2.62	1.2
MW3	7.65	4.9	70.86	36.6	364.89	109.8	2.65	1.3

WASHINGTON

TRANSMISSION	-----H C----- MEAN	S.D.	-----C O----- MEAN	S.D.	----CO2------ MEAN	S.D.	----NOXC----- MEAN	S.D.
0	N= 134		N= 134		N= 134		N= 134	
MW1	6.47	5.2	74.62	46.4	571.85	123.1	5.53	2.2
MW3	5.78	4.8	63.27	42.1	557.00	117.1	5.69	2.2
3&4	N= 35		N= 35		N= 35		N= 35	
MW1	7.04	3.8	60.30	35.8	370.99	89.0	3.79	1.7
MW3	6.50	3.6	56.46	35.1	367.70	88.5	3.80	1.8

3.4 FEDERAL TEST PROCEDURE RESULTS BY COMMON ENGINE CLASSES

The 1972 and 1975 Federal Test Procedure results (excluding Denver) are summarized in this section by common engine classes. The engine classes were selected primarily by make and cylinder displacement and are not comparable with the engine "families" described in the Federal Test Procedures. The digits following the make denote engine displacement in cubic inches and the number of cylinders. The number of vehicles tested in each class is denoted by "N", and S.D. is the standard deviation about the mean of the test results. Whenever possible, engine design considerations were applied to the selection of a specific class because a specific class may have contained evolutionary design changes by model year even though the engine may have had the same displacement. There are significant differences in all effluent levels among various engine classes, but the differences may be associated with model year or emission control equipment, rather than the engine class itself. For instance, the Chevrolet 283 CID engine, the Ford 352 CID engine, and Volkswagen 73 CID engine were manufactured prior to nationwide emission control regulations. Also, the Chevrolet 327 CID engine and the Ford 289 CID engine were manufactured either prior to, or during the early years of nationwide emission control regulations.

MAKE	CID	CYL		-----H C----- MEAN	S.D.	-----C O----- MEAN	S.D.	-----CO2----- MEAN	S.D.	-----NOXC----- MEAN	S.D.
CHEV	230	6	N=	16		16		16		16	
			Mdl	5.99	2.5	75.99	35.4	447.75	71.2	4.16	2.2
			Mn3	5.26	2.5	66.23	30.9	436.19	67.1	4.29	2.2
CHEV	283	8	N=	60		60		60		60	
			Mdl	11.36	3.7	102.36	47.1	484.16	73.1	3.98	1.6
			Mn3	10.45	8.5	93.17	45.9	490.83	77.3	3.42	1.7
CHEV	307	8	N=	16		16		16		16	
			Mdl	5.11	1.5	62.17	33.1	526.94	96.8	4.60	1.6
			Mn3	4.59	1.3	55.10	34.9	508.58	94.1	4.59	1.6
CHEV	327	8	N=	31		31		31		31	
			Mdl	9.17	4.2	113.45	41.4	529.76	93.4	3.38	1.7
			Mn3	8.32	4.1	102.06	41.4	513.82	82.8	3.41	1.8
CHEV	350	8	N=	31		31		31		31	
			Mdl	4.29	2.1	59.85	37.2	644.19	108.3	5.08	1.6
			Mn3	3.73	1.8	49.20	33.9	625.94	91.9	5.12	1.5
CHEV	400	8	N=	5		5		5		5	
			Mdl	3.53	1.3	55.48	36.7	895.00	173.4	5.01	1.6
			Mn3	3.05	1.1	48.13	31.0	825.74	909.3	4.76	1.3
PONT	326	8	N=	9		9		9		9	
			Mdl	8.16	3.5	81.47	39.2	525.57	83.5	3.82	1.4
			Mn3	7.17	2.9	73.89	38.2	503.91	78.6	3.84	1.5
PONT	350	8	N=	13		13		13		13	
			Mdl	3.83	.7	47.49	23.1	629.78	93.8	4.75	1.2
			Mn3	3.53	.6	39.63	19.5	596.81	96.4	5.04	1.3
PONT	389	8	N=	19		19		19		19	
			Mdl	9.96	13.6	93.33	37.0	568.49	137.1	4.65	2.0
			Mn3	7.35	12.7	78.54	36.1	540.79	95.7	4.52	1.9
PONT	400	8	N=	22		22		22		22	
			Mdl	7.99	12.7	91.39	59.8	621.44	63.1	4.99	1.8
			Mn3	7.42	12.9	79.12	57.5	585.49	63.0	4.99	1.9
OLDS	350	8	N=	16		16		16		16	
			Mdl	4.52	2.2	65.19	39.6	633.54	100.2	4.30	1.4
			Mn3	4.02	2.1	55.17	36.5	608.12	79.4	4.36	1.4
BUIC	350	8	N=	13		13		13		13	
			Mdl	5.37	3.4	102.69	72.9	674.23	132.1	3.91	1.9
			Mn3	4.53	2.7	85.51	64.2	625.90	121.5	3.66	1.8
FORD	250	6	N=	19		19		19		19	
			Mdl	4.46	2.4	49.33	25.2	417.76	70.5	5.18	2.0
			Mn3	3.96	2.1	42.53	24.4	395.82	63.1	5.08	1.9

MAKE	CID	CYL		-----H C----- MEAN	S.D.	-----C O----- MEAN	S.D.	-----CO2----- MEAN	S.D.	-----NOXC----- MEAN	S.D.
FORD	289	4	N=	35		35		35		35	
			Mdl	10.59	12.2	87.16	31.5	493.90	83.4	3.83	1.9
			Mn3	9.94	11.9	80.47	31.0	470.75	41.8	3.94	1.9
FORD	302	8	N=	12		12		12		12	
			Mdl	5.18	1.1	57.01	27.6	573.47	97.8	6.16	2.1
			Mn3	4.67	1.0	47.16	23.7	563.04	77.3	6.41	2.0
FORD	351	8	N=	21		21		21		21	
			Mdl	4.36	1.4	56.79	22.7	639.08	66.4	5.19	1.7
			Mn3	3.81	1.1	49.47	20.6	618.98	60.4	5.37	1.6
FORD	352	8	N=	17		17		17		17	
			Mdl	10.87	6.9	102.93	33.9	555.30	126.9	4.07	1.8
			Mn3	9.70	6.4	90.76	32.0	544.43	115.5	4.20	1.9
MERC	390	8	N=	35		35		35		35	
			Mdl	8.09	8.5	84.14	38.8	595.75	130.7	4.29	2.0
			Mn3	7.31	7.7	72.72	36.3	592.99	125.5	4.59	2.0
PLYM	225	6	N=	24		24		24		24	
			Mdl	5.53	2.7	72.90	27.1	415.23	65.7	4.30	2.0
			Mn3	4.59	2.4	59.17	26.1	415.30	59.2	4.59	2.1
PLYM	318	8	N=	32		32		32		32	
			Mdl	7.43	6.6	84.96	36.7	527.11	82.4	4.81	2.4
			Mn3	6.43	6.0	70.98	44.3	517.57	77.2	5.05	2.5
DODG	383	8	N=	26		26		26		26	
			Mdl	9.05	6.1	101.01	50.6	531.69	124.5	4.37	2.5
			Mn3	7.05	5.9	88.05	53.5	570.71	100.3	4.62	2.6
VOLK	073	4	N=	21		21		21		21	
			Mdl	12.07	12.0	65.08	26.7	243.25	59.4	2.26	1.5
			Mn3	11.75	11.8	62.78	26.5	240.23	60.0	2.25	1.5
VOLK	091	4	N=	21		21		21		21	
			Mdl	5.02	2.2	55.71	25.6	307.16	51.9	2.87	1.4
			Mn3	4.61	1.9	52.74	25.1	299.79	46.6	2.66	1.4
VOLK	097	4	N=	11		11		11		11	
			Mdl	4.73	3.5	49.83	14.7	314.82	73.2	2.62	.8
			Mn3	4.21	3.0	45.84	18.9	314.44	79.8	2.55	.8

3.5.1 Acceleration/Deceleration Sequence Bag Results, Steady State Results, and Short Cycle Results by City

This section presents mass emission results for the acceleration/deceleration sequence, the idle, 15 mph, 30 mph, 45 mph and 60 mph steady states and the Federal short cycle. These results include means, the range of emission data, standard deviation and a measure of skewness which was described in Section 2.7. Oxides of nitrogen are not corrected for humidity. All results are presented on a grams per mile basis except for idle results which are in grams of effluent per minute. Trends in all effluents for the steady state speeds are evident for most cities and the five cities combined.

FIVE CITIES EXCLUDING DENVER - 851 TESTS

	EFFLUENT	MASS	RANGE HI	RANGE LO	S.D.	SKEWNESS G1	SKEWNESS G2
ACCEL/DECEL	HC	5.18	62.56	0.81	5.46	5.43	41.59
	CO	52.45	226.13	2.95	35.85	1.64	6.49
	CO2	452.99	985.95	79.32	125.74	0.02	3.29
	NOX	5.39	20.45	0.42	2.50	0.56	3.95
STEADY STATE 45	HC	2.90	64.39	0.29	4.52	7.57	74.22
	CO	27.79	184.63	0.23	23.52	1.97	7.98
	CO2	355.55	737.79	72.39	94.75	-0.09	3.31
	NOX	4.21	14.95	0.17	2.56	0.84	3.59
STEADY STATE 15	HC	5.11	81.76	0.20	6.65	5.39	44.40
	CO	67.36	420.74	0.64	52.63	1.36	6.62
	CO2	374.23	1047.52	41.42	138.76	1.06	4.84
	NOX	0.75	10.30	0.02	1.01	5.07	34.92
STEADY STATE IDLE	HC	1.34	24.22	0.05	1.73	6.42	67.72
	CO	16.19	107.25	0.14	11.78	1.66	10.18
	CO2	68.35	317.92	9.06	31.92	1.37	8.08
	NOX	0.11	2.52	0.00	0.19	8.17	90.63
STEADY STATE 30	HC	2.99	41.96	0.14	3.79	5.69	44.94
	CO	30.02	221.54	0.34	30.74	2.05	9.07
	CO2	323.03	717.18	52.16	89.52	0.29	3.64
	NOX	2.00	15.43	0.04	1.56	2.36	13.98
STEADY STATE 60	HC	2.85	44.35	0.13	4.29	5.99	44.86
	CO	28.50	233.76	1.19	30.69	2.50	11.63
	CO2	401.60	878.83	96.74	104.92	-0.19	3.62
	NOX	6.35	19.86	0.30	3.59	0.62	2.91
SHORT CYCLE	HC	5.34	52.73	0.76	5.24	4.43	29.75
	CO	55.15	534.28	2.19	40.66	2.99	27.15
	CO2	408.96	1134.78	42.01	125.81	0.96	6.63
	NOX	3.33	22.89	0.25	2.01	1.90	14.13

MASS IN GRAMS/MILE EXCEPT FOR IDLE
IDLE-MASS IN GRAMS/MINUTE

LOS ANGELES - 175 TESTS

	EFFLUENT	MASS	RANGE HI	RANGE LO	S.D.	SKEWNESS G1	SKEWNESS G2
ACCEL/DECEL	HC	5.20	48.00	0.97	5.79	4.71	29.71
	CO	48.58	194.94	2.95	34.57	1.70	6.44
	CO2	448.35	796.01	79.32	129.47	-0.37	3.11
	NOX	4.98	12.11	0.43	2.40	0.35	2.65
STEADY STATE 45	HC	2.91	39.53	0.29	4.87	5.96	40.80
	CO	24.60	137.99	1.79	25.52	1.89	7.06
	CO2	357.90	707.44	98.58	92.31	-0.10	3.83
	NOX	3.78	11.22	0.51	2.13	0.67	3.36
STEADY STATE 15	HC	5.28	60.00	0.48	7.02	4.46	29.08
	CO	69.11	267.48	1.78	55.20	1.28	4.85
	CO2	409.53	1322.94	117.80	154.42	1.55	9.12
	NOX	0.51	8.46	0.04	0.74	7.92	82.57
STEADY STATE IDLE	HC	1.45	14.49	0.09	1.74	3.88	24.26
	CO	17.02	107.25	0.30	14.36	2.70	15.74
	CO2	72.32	183.30	15.06	31.59	0.69	3.25
	NOX	0.08	0.83	0.01	0.11	3.76	20.53
STEADY STATE 30	HC	3.09	41.96	0.51	4.53	5.52	39.85
	CO	29.50	200.34	0.74	30.18	2.08	9.09
	CO2	333.12	635.39	103.07	94.12	0.25	3.26
	NOX	1.69	15.43	0.04	1.64	4.27	31.67
STEADY STATE 60	HC	2.60	41.38	0.14	4.32	6.43	50.37
	CO	25.51	120.91	1.52	24.71	1.81	6.13
	CO2	372.47	775.63	96.74	96.51	0.28	4.52
	NOX	5.51	15.92	0.47	2.93	0.58	3.29
SHORT CYCLE	HC	5.69	42.90	1.31	5.45	3.78	22.17
	CO	48.53	186.57	5.81	33.76	1.21	4.42
	CO2	438.48	1134.78	42.01	142.74	0.63	5.49
	NOX	3.19	8.98	0.25	1.73	0.91	3.84

MASS IN GRAMS/MILE EXCEPT FOR IDLE
IDLE-MASS IN GRAMS/MINUTE

DENVER - 169 TESTS

	EFFLUENT	MASS	RANGE HI	RANGE LO	S.D.	SKEWNESS G1	SKEWNESS G2
ACCEL/DECEL	HC	6.91	39.69	0.21	4.03	3.26	20.31
	CO	120.89	313.24	28.19	53.55	0.76	3.42
	CO2	396.55	742.88	141.21	100.09	0.01	3.43
	NOX	2.55	11.94	0.30	1.59	1.84	9.36
STEADY STATE 45	HC	3.94	40.97	0.29	3.70	7.03	65.66
	CO	56.43	198.45	2.24	40.21	1.30	4.75
	CO2	330.09	535.40	142.65	72.06	-0.15	3.14
	NOX	3.07	9.04	0.24	1.90	0.87	3.30
STEADY STATE 15	HC	6.06	35.80	0.48	4.90	3.66	20.52
	CO	86.49	307.52	3.88	52.73	0.86	4.09
	CO2	345.65	854.66	130.84	116.36	1.09	5.05
	NOX	0.83	6.38	0.04	0.79	3.95	23.24
STEADY STATE IDLE	HC	1.47	10.49	0.15	1.44	3.55	18.38
	CO	17.20	76.34	0.69	11.44	1.25	6.32
	CO2	60.54	270.38	16.19	27.89	2.87	20.76
	NOX	0.12	0.57	0.01	0.10	2.28	8.97
STEADY STATE 30	HC	3.74	24.69	0.31	2.71	4.46	30.28
	CO	52.13	195.14	2.50	39.61	1.22	4.86
	CO2	297.92	503.17	107.08	69.39	0.03	3.13
	NOX	1.93	4.83	0.09	0.97	0.89	3.26
STEADY STATE 60	HC	3.87	25.88	0.24	2.69	4.32	32.41
	CO	71.13	281.14	1.11	52.69	1.35	5.05
	CO2	368.91	544.68	159.90	84.55	-0.46	2.70
	NOX	4.52	13.06	0.35	2.49	0.62	3.08
SHORT CYCLE	HC	7.07	35.03	0.60	4.48	2.81	14.87
	CO	94.68	437.64	12.01	54.70	1.80	9.47
	CO2	348.85	714.05	126.31	101.86	0.60	3.79
	NOX	2.13	16.53	0.24	1.96	4.32	30.06

MASS IN GRAMS/MILE EXCEPT FOR IDLE
IDLE-MASS IN GRAMS/MINUTE

ACCELERATION/DECELERATION SEQUENCE BAG RESULTS, STEADY STATE RESULTS AND SHORT CYCLE RESULTS

CHICAGO - 169 TESTS

	EFFLUENT	MASS	RANGE HI	RANGE LO	S.D.	SKEWNESS G1	SKEWNESS G2
ACCEL/DECEL	HC	5.72	62.55	0.90	7.72	5.46	35.34
	CO	60.63	226.35	5.32	42.23	1.44	4.92
	CO2	423.37	985.85	173.89	118.17	0.66	5.76
	NOX	4.87	20.45	0.42	2.32	1.91	14.04
STEADY STATE 45	HC	3.59	43.76	0.50	6.07	5.16	30.27
	CO	30.53	184.63	1.57	28.79	1.77	7.59
	CO2	357.65	737.79	127.47	94.45	0.12	4.34
	NOX	4.37	14.21	0.35	2.71	0.82	3.44
STEADY STATE 15	HC	5.47	56.66	0.24	7.34	4.34	25.31
	CO	66.57	307.18	0.64	48.90	1.27	5.78
	CO2	358.70	854.84	124.36	130.01	0.91	4.17
	NOX	0.87	6.74	0.08	1.00	3.68	17.60
STEADY STATE IDLE	HC	1.30	7.76	0.10	1.39	2.99	13.03
	CO	15.49	66.59	0.16	10.35	1.33	6.29
	CO2	63.85	317.92	16.66	31.57	3.30	26.24
	NOX	0.10	2.46	0.01	0.20	10.84	130.95
STEADY STATE 30	HC	3.48	41.66	0.14	5.14	5.17	32.76
	CO	29.77	129.71	0.97	26.63	1.43	4.91
	CO2	318.61	680.14	132.45	86.05	0.54	4.26
	NOX	2.36	13.17	0.21	1.71	2.33	12.44
STEADY STATE 60	HC	3.62	44.35	0.57	6.02	5.26	31.74
	CO	32.63	233.76	1.19	34.64	2.27	10.49
	CO2	417.11	878.83	149.96	105.64	0.00	4.83
	NOX	6.26	16.92	0.31	3.70	0.56	2.52
SHORT CYCLE	HC	5.74	52.73	0.76	6.81	4.68	27.70
	CO	59.74	229.67	5.96	37.84	1.54	6.34
	CO2	392.28	1087.09	144.61	126.54	1.39	8.19
	NOX	3.42	22.89	0.31	2.41	3.51	27.20

MASS IN GRAMS/MILE EXCEPT FOR IDLE
IDLE-MASS IN GRAMS/MINUTE

HOUSTON - 169 TESTS

	EFFLUENT	MASS	RANGE HI	RANGE LO	S.D.	SKEWNESS G1	SKEWNESS G2
ACCEL/DECEL	HC	5.16	31.01	1.31	4.08	3.69	19.37
	CO	55.64	193.43	6.71	33.54	1.43	5.93
	CO2	491.11	770.91	104.42	146.76	-0.06	2.33
	NOX	5.33	10.86	0.63	2.40	0.22	2.17
STEADY STATE 45	HC	2.83	64.39	0.41	5.09	10.73	128.92
	CO	32.38	168.51	2.31	30.66	1.94	7.74
	CO2	356.13	606.71	72.39	106.92	-0.14	2.61
	NOX	3.47	8.77	0.17	2.14	0.53	2.21
STEADY STATE 15	HC	5.68	81.76	0.20	9.11	5.50	39.81
	CO	77.29	420.74	1.12	62.05	1.72	8.80
	CO2	391.06	1047.52	154.98	153.65	1.45	6.20
	NOX	0.83	10.30	0.02	1.33	4.46	25.62
STEADY STATE IDLE	HC	1.50	24.22	0.07	2.63	6.72	54.41
	CO	18.74	72.00	0.14	12.56	0.93	4.68
	CO2	76.13	217.13	10.80	37.11	0.71	3.40
	NOX	0.14	1.88	0.01	0.27	4.18	23.94
STEADY STATE 30	HC	3.02	23.73	0.21	3.30	3.74	19.81
	CO	35.11	221.54	2.08	35.70	2.32	10.72
	CO2	318.91	611.91	82.94	88.83	0.12	3.40
	NOX	1.49	5.14	0.14	0.96	1.02	4.01
STEADY STATE 60	HC	2.47	28.22	0.35	2.87	6.39	51.22
	CO	31.71	188.21	2.08	30.12	2.34	10.67
	CO2	404.79	720.75	103.35	114.88	-0.72	3.46
	NOX	5.70	13.54	0.30	3.13	0.38	2.24
SHORT CYCLE	HC	5.52	47.21	0.93	5.48	4.30	26.96
	CO	63.16	267.10	4.79	42.73	1.80	8.21
	CO2	417.03	1112.67	105.63	123.78	1.02	7.72
	NOX	2.83	8.93	0.25	1.59	0.67	2.92

MASS IN GRAMS/MILE EXCEPT FOR IDLE
IDLE-MASS IN GRAMS/MINUTE

ST. LOUIS - 169 TESTS

	EFFLUENT	MASS	RANGE HI	RANGE LO	S.D.	SKEWNESS G1	SKEWNESS G2
ACCEL/DECEL	HC	5.27	31.27	1.16	4.42	3.18	15.44
	CO	52.14	207.91	9.90	31.59	1.46	6.51
	CO2	419.98	674.26	109.01	105.03	-0.41	2.97
	NOX	5.05	10.94	0.82	2.31	0.41	2.69
STEADY STATE 45	HC	2.[illegible]	19.81	0.64	2.74	4.23	22.92
	CO	26.1[illegible]	168.86	0.23	28.71	2.26	10.15
	CO2	315.26	580.22	94.96	77.19	-0.33	3.80
	NOX	3.38	7.71	0.27	1.75	0.48	2.46
STEADY STATE 15	HC	4.90	32.30	0.48	4.42	2.85	13.93
	CO	67.68	203.32	1.14	49.12	0.60	2.52
	CO2	334.24	823.18	41.42	119.45	0.85	4.44
	NOX	0.53	7.94	0.08	0.77	7.38	65.17
STEADY STATE IDLE	HC	1.33	10.64	0.16	1.41	3.88	22.35
	CO	16.43	48.48	0.34	10.67	0.45	2.56
	CO2	64.28	180.15	9.06	27.67	0.92	4.96
	NOX	0.08	0.80	0.01	0.10	4.79	32.32
STEADY STATE 30	HC	2.76	20.11	0.64	2.59	4.10	23.35
	CO	29.54	139.56	0.34	28.32	1.31	4.51
	CO2	351.64	717.18	52.16	84.23	0.71	6.17
	NOX	1.57	7.21	0.11	1.09	1.76	7.49
STEADY STATE 60	HC	2.67	27.13	0.45	3.54	4.35	24.35
	CO	26.97	200.68	1.74	32.56	3.08	14.71
	CO2	362.26	531.95	115.03	82.01	-0.65	3.24
	NOX	5.43	13.21	0.31	2.79	0.49	2.82
SHORT CYCLE	HC	5.28	25.12	0.86	3.99	2.46	10.61
	CO	56.43	534.28	2.19	49.37	5.49	53.01
	CO2	378.23	973.58	97.51	113.90	1.45	9.85
	NOX	3.19	12.05	0.49	1.76	1.69	8.47

MASS IN GRAMS/MILE EXCEPT FOR IDLE
IDLE-MASS IN GRAMS/MINUTE

WASHINGTON - 169 TESTS

	EFFLUENT	MASS	RANGE HI	RANGE LO	S.D.	SKEWNESS G1	SKEWNESS G2
ACCEL/DECEL	HC	4.57	37.73	0.81	4.42	4.66	29.82
	CO	45.39	235.13	5.54	34.89	2.10	9.14
	CO2	482.40	769.85	177.65	112.91	-0.26	2.81
	NOX	6.74	12.69	1.63	2.62	0.02	2.36
STEADY STATE 45	HC	2.57	24.28	0.35	2.82	5.51	37.94
	CO	25.40	144.45	1.05	28.30	1.93	6.66
	CO2	390.83	586.43	175.57	85.59	-0.41	2.58
	NOX	6.04	14.95	0.92	2.95	0.30	2.69
STEADY STATE 15	HC	4.23	22.48	0.38	3.86	2.48	10.26
	CO	56.10	225.50	1.72	44.47	1.02	4.08
	CO2	380.44	909.42	153.30	138.97	1.14	4.62
	NOX	1.04	9.12	0.28	1.02	4.72	31.65
STEADY STATE IDLE	HC	1.12	6.45	0.05	1.03	2.27	9.39
	CO	13.25	51.19	0.36	9.64	0.98	4.17
	CO2	65.04	200.73	14.21	29.31	1.23	5.55
	NOX	0.13	2.52	0.03	0.20	10.69	127.96
STEADY STATE 30	HC	2.59	23.90	0.26	2.60	5.24	38.31
	CO	26.19	193.56	0.43	31.80	2.34	9.29
	CO2	343.54	546.58	123.63	88.86	-0.11	2.55
	NOX	2.88	9.18	0.38	1.74	0.91	3.80
STEADY STATE 60	HC	2.88	27.90	0.13	3.99	4.94	28.12
	CO	25.79	186.15	1.43	30.31	2.44	10.34
	CO2	452.50	685.38	168.15	97.95	-0.44	2.81
	NOX	8.90	19.86	1.59	4.07	0.09	2.29
SHORT CYCLE	HC	4.46	28.28	0.85	3.82	3.36	17.90
	CO	48.11	189.19	3.87	36.16	1.36	4.74
	CO2	417.79	734.93	149.36	110.94	0.27	2.77
	NOX	4.23	11.04	0.74	2.16	0.56	3.04

MASS IN GRAMS/MILE EXCEPT FOR IDLE
IDLE-MASS IN GRAMS/MINUTE

ACCELERATION/DECELERATION SEQUENCE BAG RESULTS,
STEADY STATE RESULTS AND SHORT CYCLE RESULTS

3-52

3.5.2 Acceleration/Deceleration Sequence Mode Results by City

This section provides results for HC, CO, CO_2, and NO_x (not corrected for humidity) both on a concentration (ppm) basis and a mass (grams per mile) basis for the 32 acceleration/deceleration modes. Statistical analyses were not performed on the individual modes, but were performed on the calculated acceleration/deceleration data described in the next section. The acceleration rates together with initial and terminal speeds for these modes may be found in Figure 2.6-1, page 2-50, and a complete listing of the sequence appears at the end of Section 4.3, in the Appendix.

FIVE CITIES EXCLUDING DENVER - 851 TESTS

	(PPM) CONCENTRATION				(GRAMS PER MILE) MASS			
MODE	HC	CO	CO2	NOX	HC	CO	CO2	NOX
1	757.	3773.	19118.	212.	11.8	121.28	955.38	11.3
2	353.	1390.	6111.	41.	5.6	46.75	310.77	2.3
3	536.	2997.	10928.	62.	16.2	190.38	1060.35	6.4
4	555.	2917.	17471.	183.	6.6	72.53	674.88	7.5
5	650.	2973.	24090.	328.	4.7	45.18	573.36	8.3
6	399.	1500.	8440.	95.	2.8	22.18	192.40	2.4
7	981.	7148.	33971.	426.	6.0	90.48	669.26	8.9
8	542.	2140.	12572.	171.	2.9	23.69	216.33	3.1
9	847.	4126.	32846.	493.	4.5	45.27	564.19	9.0
10	610.	1953.	9234.	106.	4.2	27.44	198.57	2.5
11	952.	6098.	31886.	445.	6.1	81.23	662.80	9.8
12	600.	1912.	8590.	103.	4.9	32.04	219.98	2.9
13	925.	5335.	29772.	436.	6.9	82.74	721.16	11.2
14	616.	2082.	10019.	115.	3.6	25.29	187.35	2.3
15	375.	1522.	6338.	40.	4.3	36.85	231.41	1.6
16	344.	1902.	5241.	21.	11.7	138.53	562.57	2.4
17	806.	4649.	23429.	298.	7.8	93.16	730.27	9.9
18	449.	1775.	7317.	67.	3.9	32.10	200.71	2.0
19	741.	4334.	23069.	292.	6.7	81.70	677.77	9.1
20	459.	1798.	6915.	59.	5.0	41.18	239.54	2.2
21	1073.	7789.	31467.	402.	7.9	118.07	742.47	10.1
22	629.	1995.	8257.	86.	5.1	33.48	211.49	2.4
23	709.	3691.	17115.	182.	11.1	120.15	861.83	9.8
24	795.	4510.	29170.	431.	4.9	57.59	582.50	9.1
25	584.	2041.	9910.	118.	3.4	24.52	183.55	2.4
26	382.	1646.	6142.	39.	6.4	58.05	324.64	2.2
27	830.	4625.	27380.	409.	6.1	70.34	649.38	10.3
28	612.	2062.	8208.	78.	5.0	34.65	209.93	2.2
29	643.	3504.	15556.	155.	10.0	113.70	779.45	8.3
30	850.	5851.	30179.	410.	5.3	75.95	610.55	8.8
31	546.	2006.	9896.	129.	3.2	24.42	185.34	2.6
32	403.	1768.	5871.	37.	6.6	60.83	300.49	2.1

ACCELERATION/DECELERATION SEQUENCE MODE RESULTS

LOS ANGELES - 175 TESTS

MODE	(PPM) CONCENTRATION HC	CO	CO2	NOX	(GRAMS PER MILE) MASS HC	CO	CO2	NOX
1	649.	3506.	17625.	190.	9.7	108.17	834.12	9.6
2	386.	1490.	6558.	40.	6.1	49.49	329.54	1.9
3	520.	2657.	11556.	69.	15.2	162.38	1082.31	6.7
4	507.	2591.	17450.	181.	5.7	62.02	641.59	7.0
5	618.	2641.	23246.	314.	4.2	38.48	524.30	7.5
6	422.	1550.	9081.	86.	2.8	22.44	202.75	2.0
7	856.	5528.	32076.	408.	4.9	66.48	596.51	8.1
8	536.	2213.	11898.	147.	2.7	23.87	197.46	2.4
9	787.	3484.	31182.	436.	3.9	36.47	505.64	7.5
10	575.	1821.	9289.	84.	3.7	24.77	191.26	1.8
11	810.	4672.	30357.	422.	4.8	58.60	596.57	8.8
12	561.	1831.	8586.	81.	4.3	29.89	212.76	2.1
13	824.	4312.	29155.	418.	5.7	63.18	670.40	10.2
14	585.	1870.	9549.	93.	3.2	22.01	172.71	1.7
15	323.	1464.	6846.	30.	3.6	34.66	246.04	1.1
16	286.	1739.	5492.	13.	9.4	122.44	582.69	1.5
17	673.	3658.	22963.	281.	6.1	69.44	678.94	8.8
18	428.	1517.	7566.	57.	3.6	26.47	202.80	1.5
19	639.	3480.	22119.	274.	5.4	62.12	618.45	8.1
20	410.	1573.	7049.	49.	4.2	34.80	239.24	1.7
21	874.	5513.	30717.	400.	5.9	78.21	686.29	9.5
22	543.	1696.	7718.	61.	4.2	27.29	190.98	1.6
23	598.	3003.	17414.	169.	8.9	93.41	837.45	8.6
24	698.	3438.	27952.	416.	4.0	41.56	529.12	8.3
25	539.	1623.	8794.	88.	3.0	18.68	157.32	1.6
26	337.	1620.	6417.	29.	5.4	56.05	332.35	1.6
27	693.	3410.	26194.	394.	4.8	49.19	588.28	9.3
28	520.	1787.	7743.	59.	4.0	29.05	191.49	1.5
29	548.	2790.	15959.	146.	8.2	86.36	765.42	7.4
30	720.	4082.	28982.	413.	4.2	49.81	554.79	8.4
31	533.	1637.	9088.	106.	2.9	19.13	163.89	1.9
32	314.	1514.	6245.	30.	4.9	50.28	314.84	1.5

ACCELERATION/DECELERATION SEQUENCE MODE RESULTS

DENVER - 169 TESTS

	(PPM)				(GRAMS PER MILE)			
	CONCENTRATION				MASS			
MODE	HC	CO	CO2	NOX	HC	CO	CO2	NOX
1	1003.	10450.	14172.	112.	12.7	271.66	564.54	4.6
2	446.	2456.	4902.	37.	6.0	69.07	200.92	1.5
3	660.	5252.	7915.	33.	16.6	272.49	616.48	2.5
4	740.	7279.	12806.	106.	7.3	147.87	397.75	3.4
5	919.	10626.	18105.	212.	5.6	132.00	346.72	4.2
6	508.	3041.	6759.	95.	3.0	37.49	124.06	1.8
7	1498.	22506.	23961.	230.	7.5	230.14	379.42	3.8
8	786.	4984.	10286.	188.	3.5	45.41	142.23	2.8
9	1274.	16440.	24223.	341.	5.6	146.63	334.63	4.9
10	835.	4093.	7619.	124.	4.7	47.48	132.40	2.3
11	1572.	23397.	22522.	199.	8.3	252.75	376.35	3.5
12	833.	4085.	7314.	123.	5.6	56.54	151.35	2.7
13	1535.	19753.	20438.	198.	9.5	248.87	397.62	4.0
14	895.	4857.	8680.	139.	4.4	48.60	130.85	2.2
15	511.	2826.	5082.	44.	5.0	56.95	149.68	1.3
16	451.	2982.	3866.	17.	13.0	179.61	332.14	1.3
17	1265.	16247.	15999.	133.	10.1	264.70	400.57	3.5
18	604.	3524.	5945.	69.	4.4	52.77	131.49	1.6
19	1126.	14863.	15766.	128.	8.4	228.05	371.59	3.1
20	630.	3491.	5530.	59.	5.8	66.23	154.21	1.7
21	1730.	25496.	21238.	156.	10.4	312.80	402.57	3.1
22	850.	4555.	7479.	102.	5.7	63.09	155.03	2.2
23	1045.	10461.	12261.	94.	13.5	277.35	496.14	3.9
24	1246.	17567.	19730.	203.	6.3	182.49	316.22	3.4
25	745.	5084.	8719.	146.	3.6	50.38	130.23	2.3
26	502.	2813.	4857.	42.	7.1	82.31	206.87	1.8
27	1346.	17466.	18799.	191.	8.1	215.80	358.05	3.8
28	850.	4514.	7061.	99.	5.7	62.49	145.87	2.2
29	894.	8897.	11108.	93.	11.5	235.36	446.97	3.9
30	1468.	20384.	20620.	188.	7.6	214.38	334.98	3.2
31	760.	4978.	8493.	150.	3.7	49.99	128.43	2.4
32	551.	2866.	4501.	37.	7.6	81.72	185.66	1.5

ACCELERATION/DECELERATION SEQUENCE MODE RESULTS

CHICAGO - 169 TESTS

MODE	(PPM) CONCENTRATION HC	CO	CO2	NOX	(GRAMS PER MILE) MASS HC	CO	CO2	NOX
1	830.	3085.	19935.	193.	12.1	94.46	973.15	10.0
2	369.	1004.	6103.	52.	5.2	29.85	298.04	2.8
3	531.	2163.	10845.	62.	14.7	129.45	1027.08	6.2
4	591.	2259.	16575.	167.	6.5	53.07	628.29	6.8
5	758.	2479.	23336.	279.	5.3	35.84	547.20	7.0
6	461.	1166.	8916.	110.	3.0	15.56	198.03	2.7
7	1135.	6989.	33283.	338.	6.7	86.37	647.96	7.0
8	643.	1795.	13768.	189.	3.2	18.59	232.28	3.5
9	1042.	4089.	32621.	402.	5.3	43.48	553.70	7.2
10	641.	1541.	9618.	129.	4.1	20.02	202.05	3.0
11	1131.	6342.	31585.	343.	7.0	82.70	648.82	7.5
12	661.	1698.	9083.	122.	5.0	26.54	226.74	3.3
13	1067.	5571.	29478.	337.	7.7	84.48	705.12	8.6
14	676.	1828.	10701.	131.	3.7	20.81	195.36	2.6
15	427.	1266.	6448.	46.	4.4	27.94	227.06	1.8
16	388.	1584.	5333.	27.	11.9	107.14	547.78	3.0
17	956.	4671.	22985.	237.	8.9	91.12	706.33	7.8
18	519.	1546.	7509.	78.	4.1	25.92	199.56	2.3
19	876.	4291.	22669.	233.	7.6	78.62	655.77	7.2
20	527.	1556.	7073.	69.	5.3	33.07	236.68	2.6
21	1274.	8556.	31228.	304.	9.1	127.35	728.28	7.5
22	706.	1709.	8568.	102.	5.4	26.78	213.02	2.8
23	873.	3405.	16930.	146.	13.1	106.83	838.14	7.7
24	1047.	5398.	29364.	331.	6.2	67.42	579.11	6.9
25	709.	1895.	10448.	138.	3.9	21.44	188.61	2.7
26	443.	1409.	6217.	44.	6.7	45.70	316.48	2.5
27	1068.	5184.	27131.	316.	7.6	76.91	635.10	7.9
28	679.	1762.	8782.	95.	5.2	27.68	218.70	2.6
29	783.	3363.	15218.	125.	11.6	105.19	748.24	6.6
30	1104.	6775.	29317.	291.	6.7	86.15	585.51	6.2
31	657.	1843.	10490.	138.	3.6	21.08	191.78	2.8
32	481.	1731.	6073.	42.	7.2	55.94	300.36	2.3

ACCELERATION/DECELERATION SEQUENCE MODE RESULTS

HOUSTON - 169 TESTS

	(PPM) CONCENTRATION				(GRAMS PER MILE) MASS			
MODE	HC	CO	CO2	NOX	HC	CO	CO2	NOX
1	838.	4783.	21129.	220.	13.5	157.49	1074.49	11.8
2	354.	2130.	5832.	31.	5.9	74.97	301.26	1.7
3	581.	4343.	11888.	64.	18.2	283.89	1181.76	6.6
4	612.	4094.	19782.	189.	7.5	104.74	782.41	7.9
5	664.	4082.	26949.	344.	5.0	63.85	655.99	8.8
6	400.	2336.	7606.	81.	2.9	36.08	175.68	2.0
7	1038.	8121.	36783.	461.	6.5	104.92	740.13	9.8
8	530.	3124.	11863.	143.	2.9	35.79	207.16	2.7
9	800.	4982.	35050.	514.	4.4	56.01	614.84	9.5
10	642.	2979.	8291.	75.	4.5	43.42	181.10	1.8
11	958.	7002.	34204.	492.	6.4	95.50	726.29	11.0
12	657.	2902.	7840.	80.	5.5	50.46	203.70	2.2
13	914.	6223.	32066.	496.	7.1	98.93	793.36	13.0
14	708.	3105.	8546.	83.	4.3	39.03	161.24	1.7
15	384.	2382.	5927.	33.	4.6	60.19	219.72	1.3
16	362.	2920.	5123.	20.	12.9	221.01	559.94	2.2
17	845.	5839.	25514.	322.	8.4	120.02	813.30	10.8
18	493.	2971.	6705.	53.	4.4	55.90	186.50	1.6
19	797.	5419.	25864.	329.	7.5	104.87	776.56	10.4
20	510.	2946.	6513.	45.	5.8	70.21	228.93	1.7
21	1115.	9104.	33046.	428.	8.4	141.16	796.36	10.9
22	671.	3141.	7344.	63.	5.7	54.68	190.09	1.7
23	714.	4859.	18574.	198.	11.5	162.42	957.17	10.8
24	773.	5333.	31212.	471.	4.9	69.84	636.46	10.1
25	584.	3236.	9222.	92.	3.5	40.31	173.07	1.9
26	387.	2628.	5875.	32.	6.7	96.49	315.96	1.8
27	813.	5614.	29409.	450.	6.1	87.48	712.57	11.5
28	683.	3238.	7220.	52.	5.8	56.36	186.57	1.4
29	663.	4816.	16607.	164.	10.6	160.59	851.12	8.9
30	859.	7049.	33287.	460.	5.5	93.63	687.99	10.0
31	551.	3213.	9178.	99.	3.3	40.56	174.53	2.0
32	440.	2880.	5339.	28.	7.5	103.19	277.36	1.5

ACCELERATION/DECELERATION SEQUENCE MODE RESULTS

ST. LOUIS - 169 TESTS

MODE	(PPM) CONCENTRATION HC	CO	CO2	NOX	(GRAMS PER MILE) MASS HC	CO	CO2	NOX
1	802.	4229.	17682.	223.	12.8	138.46	886.89	11.9
2	343.	1299.	6028.	31.	5.7	45.56	312.02	1.8
3	560.	3246.	9586.	48.	17.6	210.09	937.25	5.1
4	561.	3047.	16063.	178.	6.9	77.18	624.98	7.4
5	631.	3060.	23093.	348.	4.7	47.40	553.37	8.9
6	349.	1187.	7704.	72.	2.6	18.25	177.29	1.8
7	978.	7996.	33540.	452.	6.1	101.96	664.68	9.5
8	460.	1575.	10754.	132.	2.5	17.90	185.57	2.5
9	811.	3840.	31260.	557.	4.4	42.69	539.85	10.2
10	608.	1747.	8186.	84.	4.3	25.27	177.77	2.0
11	996.	6828.	31855.	476.	6.6	91.96	666.37	10.5
12	563.	1567.	7909.	86.	4.7	27.05	204.61	2.4
13	972.	5812.	29076.	452.	7.5	91.28	708.56	11.7
14	561.	1772.	9190.	93.	3.4	22.11	172.98	1.9
15	415.	1277.	6229.	35.	5.0	32.11	231.56	1.4
16	370.	1758.	4979.	16.	13.3	132.16	544.27	1.9
17	842.	5130.	22904.	315.	8.3	104.22	719.32	10.5
18	401.	1476.	7092.	59.	3.6	27.57	197.35	1.8
19	724.	4667.	21977.	298.	6.7	89.25	649.41	9.4
20	421.	1468.	6746.	53.	4.8	34.73	237.13	2.1
21	1131.	8666.	31348.	430.	8.5	132.53	744.53	10.8
22	587.	1763.	7980.	77.	4.9	30.46	206.65	2.2
23	743.	4029.	16272.	195.	12.0	133.18	826.31	10.6
24	734.	4279.	28150.	465.	4.6	55.40	565.41	9.9
25	479.	1752.	9781.	102.	2.9	21.64	182.80	2.1
26	404.	1340.	6207.	34.	7.1	48.91	334.89	2.0
27	815.	4883.	26763.	423.	6.1	75.20	638.88	10.7
28	610.	1833.	7746.	67.	5.1	31.65	200.19	1.9
29	654.	3575.	14838.	167.	10.5	117.90	749.87	9.0
30	782.	5834.	28868.	435.	5.0	76.53	587.36	9.4
31	473.	1642.	9409.	114.	2.9	20.57	177.98	2.3
32	421.	1430.	5922.	35.	7.2	50.88	310.42	2.0

ACCELERATION/DECELERATION SEQUENCE MODE RESULTS

WASHINGTON - 169 TESTS

	(PPM) CONCENTRATION				(GRAMS PER MILE) MASS			
MODE	HC	CO	CO2	NOX	HC	CO	CO2	NOX
1	673.	3273.	19271.	237.	10.9	108.35	1012.60	13.4
2	312.	1024.	6019.	52.	5.1	33.80	313.93	3.0
3	486.	2585.	10742.	66.	15.3	167.27	1077.12	7.1
4	507.	2607.	17487.	201.	6.3	66.06	700.73	8.6
5	582.	2617.	23862.	357.	4.4	40.55	589.76	9.4
6	362.	1260.	8868.	128.	2.7	18.58	209.12	3.3
7	903.	7165.	34258.	470.	5.7	93.58	701.57	10.2
8	543.	1988.	14603.	246.	3.0	22.33	260.96	4.7
9	794.	4256.	34190.	559.	4.4	48.01	610.71	10.6
10	586.	1681.	10785.	157.	4.2	23.80	242.04	3.8
11	872.	5694.	31497.	492.	5.8	78.23	680.36	11.3
12	558.	1567.	9531.	145.	4.7	26.36	253.52	4.3
13	850.	4795.	29119.	475.	6.6	76.58	732.56	12.7
14	552.	1843.	12124.	175.	3.4	22.63	236.02	3.7
15	329.	1225.	6223.	56.	3.9	29.45	233.33	2.4
16	317.	1514.	5268.	28.	11.2	110.65	580.15	3.4
17	721.	3980.	22803.	335.	7.2	81.89	738.02	11.6
18	408.	1377.	7702.	88.	3.7	24.83	218.45	2.8
19	671.	3844.	22758.	325.	6.3	74.39	693.51	10.6
20	428.	1452.	7186.	78.	4.9	33.31	256.80	3.1
21	978.	7188.	31040.	449.	7.5	112.57	761.19	11.7
22	641.	1680.	9696.	126.	5.5	28.41	258.31	3.7
23	620.	3183.	16372.	200.	10.1	105.96	854.32	11.2
24	726.	4139.	29230.	472.	4.7	54.33	606.30	10.4
25	609.	1714.	11343.	173.	3.7	20.75	217.98	3.6
26	340.	1237.	5984.	55.	5.9	43.20	324.47	3.3
27	766.	4077.	27457.	460.	5.9	63.67	676.60	12.1
28	572.	1698.	9568.	117.	4.8	28.72	254.56	3.4
29	571.	3003.	15146.	175.	9.2	99.53	786.31	9.8
30	789.	5576.	30496.	452.	5.1	74.57	641.09	10.1
31	517.	1708.	11344.	189.	3.2	20.96	221.00	4.0
32	365.	1294.	5764.	52.	6.2	44.26	303.41	3.1

3.5.3 Comparison of Acceleration/Deceleration Sequence Bag Results and Acceleration/Deceleration Sequence Calculated Results By City

This section contains the bag and calculated exhaust emission results of the acceleration/deceleration sequence for the six cities. Refer to Section 2.7.3 for a description of the procedure used to synthesize the calculated acceleration/deceleration sequence results. Oxides of nitrogen are not corrected for humidity, and all results are presented in grams per vehicle mile. Included with the mean emission values are the highest and lowest values (range), standard deviation and a measure of skewness. The average difference between the calculated and bag results and the standard deviation about the mean difference are presented for comparative purposes.

In general, agreement between acceleration/deceleration sequence bag results and the acceleration/deceleration sequence calculated results is quite good, lending added confidence to the precision of the acceleration/deceleration sequence mode results.

175 TESTS FOR LOS ANGELES

EFFLUENT	MASS	RANGE HI	RANGE LO	S.D.	SKEWNESS G1	SKEWNESS G2	CALC MASS	RANGE HI	RANGE LO	S.D.	SKEWNESS G1	SKEWNESS G2	AVER DIFF	S.D. DIFF
HC	5.20	47.99	0.97	5.79	4.71	29.70	4.12	41.28	0.71	4.99	5.12	33.81	1.17	1.36
CO	48.58	194.94	2.95	34.56	1.70	6.44	40.90	142.01	3.81	28.67	1.29	4.17	15.28	19.26
CO2	448.35	794.01	79.32	125.46	0.37	3.11	409.18	687.19	139.70	113.91	0.96	2.64	93.77	61.59
NOX	4.97	12.11	0.42	2.40	0.34	2.65	4.84	14.21	0.42	2.45	0.72	3.60	0.96	1.09

169 TESTS FOR DENVER

EFFLUENT	MASS	RANGE HI	RANGE LO	S.D.	SKEWNESS G1	SKEWNESS G2	CALC MASS	RANGE HI	RANGE LO	S.D.	SKEWNESS G1	SKEWNESS G2	AVER DIFF	S.D. DIFF
HC	6.91	35.68	0.20	4.03	3.25	20.30	5.85	35.33	0.63	3.76	3.62	26.21	1.21	1.14
CO	120.89	313.24	28.19	53.55	0.76	3.42	115.73	284.41	25.55	49.63	0.63	3.04	10.39	10.94
CO2	396.55	742.87	141.20	100.10	0.01	3.43	388.94	570.96	113.89	102.33	0.59	2.38	31.91	118.23
NOX	2.55	11.91	0.29	1.59	1.43	9.35	3.12	9.48	0.49	1.71	0.92	3.67	0.77	0.66

169 TESTS FOR CHICAGO

EFFLUENT	MASS	RANGE HI	RANGE LO	S.D.	SKEWNESS G1	SKEWNESS G2	CALC MASS	RANGE HI	RANGE LO	S.D.	SKEWNESS G1	SKEWNESS G2	AVER DIFF	S.D. DIFF
HC	5.72	62.55	0.99	7.72	5.45	35.33	5.33	51.45	1.08	7.04	5.00	29.56	0.83	1.33
CO	60.63	226.34	5.32	42.22	1.44	4.92	48.91	213.39	5.49	34.81	1.59	6.97	14.39	16.05
CO2	423.37	985.96	173.88	118.16	0.65	5.75	431.75	711.44	168.79	105.91	0.24	2.79	39.48	41.53
NOX	4.86	20.44	0.42	2.31	1.90	14.03	5.00	13.00	0.45	2.61	0.76	3.18	1.65	1.67

169 TESTS FOR HOUSTON

EFFLUENT	MASS	RANGE HI	RANGE LO	S.D.	SKEWNESS G1	SKEWNESS G2	CALC MASS	RANGE HI	RANGE LO	S.D.	SKEWNESS G1	SKEWNESS G2	AVER DIFF	S.D. DIFF
HC	5.15	31.01	1.31	4.08	3.69	19.37	4.86	35.64	1.31	4.08	4.49	27.04	0.57	0.59
CO	55.64	193.43	6.71	33.94	1.42	5.93	63.28	196.13	6.80	37.35	1.15	5.03	10.75	6.96
CO2	491.19	770.91	104.42	146.74	0.06	2.32	493.54	676.45	102.11	115.48	0.38	2.71	43.12	45.23
NOX	5.32	10.83	0.67	2.49	0.21	2.17	5.49	11.77	0.63	2.48	0.37	2.45	0.51	0.56

169 TESTS FOR ST. LOUIS

EFFLUENT	MASS	RANGE HI	RANGE LO	S.D.	SKEWNESS G1	SKEWNESS G2	CALC MASS	RANGE HI	RANGE LO	S.D.	SKEWNESS G1	SKEWNESS G2	AVER DIFF	S.D. DIFF
HC	5.26	31.27	1.16	4.41	3.18	15.44	4.63	28.05	1.17	4.05	3.39	16.20	0.73	0.78
CO	52.14	207.90	9.89	31.58	1.45	6.51	50.02	178.87	9.11	31.76	1.56	6.14	6.67	6.29
CO2	419.98	674.25	109.01	105.03	0.41	2.97	411.18	638.65	101.97	95.01	0.49	2.97	21.78	25.25
NOX	5.04	10.94	0.87	2.31	0.41	2.69	5.14	11.93	0.98	2.48	0.50	2.87	0.48	0.59

169 TESTS FOR WASHINGTON

EFFLUENT	MASS	RANGE HI	RANGE LO	S.D.	SKEWNESS G1	SKEWNESS G2	CALC MASS	RANGE HI	RANGE LO	S.D.	SKEWNESS G1	SKEWNESS G2	AVER DIFF	S.D. DIFF
HC	4.56	37.73	0.81	4.42	4.66	29.81	4.45	33.52	0.97	4.14	4.49	27.36	0.43	0.60
CO	45.39	235.13	9.53	34.88	2.09	9.14	44.61	221.66	5.59	33.38	1.97	8.48	3.61	4.93
CO2	482.40	769.84	177.65	112.90	0.25	2.82	465.57	726.98	184.07	109.21	0.20	2.73	20.33	16.05
NOX	6.74	12.68	1.62	2.61	0.01	2.36	7.13	15.32	1.24	2.75	0.02	2.58	0.69	0.56

3.6 EVAPORATIVE EMISSION TEST RESULTS

A subsample of test vehicles for evaporative emission tests in Los Angeles and Denver was randomly selected from the exhaust emission test vehicle sample. The resulting subsample did not fully represent the nationwide make and model year profile because of the random selection of the subsample and the fewer vehicles involved.

Evaporative emission test results and pertinent test data for the diurnal loss and hot soak loss tests are included in this section. Hydrocarbon results are presented in grams per vehicle test. In addition to emissions data, the length of test, SHED temperatures, internal vehicle tank temperatures, and external tank temperatures are included.

Test fuel inspection information for each test is also included. Reid vapor pressure (RVP) was measured by the ASTM D323 test method. The hydrogen/carbon atom (H/C) ratio was calculated by a chromatographic technique described in Section 2. The ASTM D86 test method was used to obtain the fuel distillation properties.

The diurnal loss measurements were, on the average, substantially higher than the hot soak losses. The diurnal, hot soak and combined hydrocarbon losses for Denver were about twice as high as the comparable results for Los Angeles. Test repeatability for Los Angeles was excellent, although the one replicate performed in Denver provided poor repeatability.

EVAPORATIVE EMISSION TEST RESULTS

		Los Angeles	Denver
Number of Vehicles		125	20
Diurnal Soak:	Time in Minutes	59	60
	Enclosure Temperature °F	73	75
	Internal Temperature °F	84	84
	External Temperature °F (Based on 43 vehicles)	81	-
	HC/GMS	23.53	47.20
Hot Soak:	Time in Minutes	60	60
	Enclosure Temperature °F	80	83
	Internal Temperature °F	85	89
	External Temperature °F	82	-
	HC/GMS	13.75	34.78
Combined Losses:	HC/GMS	37.28	81.98
Fuel Inspection Results			
	Reid Vapor Pressure	9.73	11.65
	Hydrogen/Carbon Ratio	2.39	2.19
	Fuel Distillation Temperatures °F		
	Initial Boiling Point	90.6	84.4
	5% Evaporated	108.4	101.4
	10% "	122.9	110.3
	15% "	134.9	123.8
	20% "	145.9	-
	30% "	173.7	-
	40% "	198.4	-
	50% "	221.2	210.3
	90% "	330.2	361.5
	Final Boiling Point	413.9	413.6
Average Differences Between Original and Replicate Tests (N=10)			
	Diurnal: HC/GMS	3.99	13.80
	Hot Soak: HC/GMS	0.27	18.08
	Combined: HC/GMS	0.01	31.88

3.7 ANALYSIS OF REPLICATE TEST RESULTS

A measure of test repeatability was obtained by randomly selecting 10 vehicles in each city for complete replicate emission tests. The null hypothesis, that the mean difference between original and replicate test results equalled zero, was formulated. The null hypothesis should be accepted, at the 95% confidence level, if the "Z" values are ≤ -1.96 or ≥ 1.96.

In all cases but one, (idle CO_2) the null hypothesis was accepted with 95% confidence.

Another indicator of repeatability of the test results is the standard deviation of the differences for each vehicle expressed as a percentage of the mean of the original and replicate test results. This standard deviation in all cases, is very low.

ANALYSIS OF REPLICATE TEST RESULTS

		HC	CO	CO2	NO	NOX
MW1	N	62	62	62	62	62
	MEAN	0.87	5.56	-5.75	-0.03	-0.13
	STD	6.61	35.48	40.42	0.47	0.60
	Z VALUE	1.03	1.23	-1.12	-0.48	-1.75
	STD PERC	0.82	0.37	0.08	0.15	0.15
MW3	N	62	62	62	62	62
	MEAN	0.94	6.20	-2.61	0.01	-0.07
	STD	6.28	34.44	35.40	0.47	0.62
	Z VALUE	1.17	1.42	-0.58	0.09	-0.95
	STD PERC	0.88	0.41	0.07	0.14	0.15
A/D B	N	61	61	61	0	61
	MEAN	0.77	-0.53	-5.98	0.0	-0.05
	STD	5.39	14.19	52.97	0.0	1.12
	Z VALUE	1.12	-0.29	-0.88	0.0	-0.34
	STD PERC	0.97	0.21	0.12	0.0	0.22
A/D C	N	61	61	61	0	61
	MEAN	0.61	-2.38	-6.56	0.0	0.02
	STD	5.55	24.73	59.21	0.0	1.40
	Z VALUE	0.86	-0.75	-0.86	0.0	0.12
	STD PERC	0.90	0.31	0.11	0.0	0.20
SHORT	N	61	61	61	0	61
	MEAN	0.95	2.60	2.50	0.0	0.01
	STD	4.80	23.80	52.95	0.0	0.72
	Z VALUE	1.54	0.85	0.37	0.0	0.06
	STD PERC	0.82	0.36	0.13	0.0	0.24
SSI	N	61	61	61	0	61
	MEAN	0.05	1.42	-5.99	0.0	-0.05
	STD	0.55	6.37	17.61	0.0	0.22
	Z VALUE	0.73	1.74	-2.66	0.0	-1.65
	STD PERC	0.42	0.38	0.24	0.0	1.89
SS15	N	61	61	61	0	61
	MEAN	1.09	7.02	2.06	0.0	0.21
	STD	5.07	28.37	79.84	0.0	1.22
	Z VALUE	1.68	1.93	0.20	0.0	1.37
	STD PERC	1.04	0.41	0.21	0.0	1.67
SS30	N	61	61	61	0	61
	MEAN	0.41	2.05	-3.32	0.0	-0.05
	STD	2.86	13.41	32.29	0.0	0.65
	Z VALUE	1.12	1.20	-0.80	0.0	-0.65
	STD PERC	0.85	0.40	0.10	0.0	0.32
SS45	N	61	61	61	0	61
	MEAN	0.54	-2.79	3.60	0.0	0.21
	STD	4.38	14.54	29.62	0.0	1.26
	Z VALUE	0.96	-1.50	0.95	0.0	1.32
	STD PERC	1.29	0.38	0.08	0.0	0.30
SS60	N	61	61	61	0	61
	MEAN	0.63	0.79	8.83	0.0	0.03
	STD	3.66	12.60	52.27	0.0	1.72
	Z VALUE	1.35	0.49	1.32	0.0	0.13
	STD PERC	1.11	0.28	0.13	0.0	0.27

3.8 SIGNIFICANT DIFFERENCES IN TEST RESULTS AMONG CITIES AND MODEL YEARS

This section tabulates the significant differences in 1972 Federal Test Procedure results among various combinations of cities and model years. The chi-square test of significant difference in the distribution of test results was used as described in Section 2.7.3. One of the most apparent differences, at the 95% confidence level, in test results occurred between Denver and the other five cities. This was to be expected because the atmospheric pressure in Denver is nominally 5 in. Hg less than the other cities. All effluents exhibited this significant difference, the strength of which may be gauged by the relative magnitude of χ_C^2 (calculated) and χ_E^2 (expected). For this reason, results from Denver were not combined with test results from other cities. Significant differences in CO_2 for Chicago, in CO for Houston and in HC for St. Louis versus the other four cities are indicated by the chi-square test, but these differences are not very strong. Washington test results for oxides of nitrogen and carbon monoxide are significantly different from the results of Los Angeles, Chicago, Houston and St. Louis. This difference could not be explained by a thorough review of raw test data, equipment calibration or test procedures. However, the 1972 Federal Test results for Washington exhibits lower CO values and higher NO_xC values when compared to any other city except Denver. This comparison may indicate that the Washington test vehicle sample was operating at a slightly leaner air fuel ratio, which in turn caused the higher NO_xC values.

The chi-square test indicates significant differences in most effluents for the 1970 and 1971 model year vehicles when compared to the 1968 and 1969 vehicles, reflecting improved exhaust emissions controls. Also, the 1970 and 1971 modes exhibit significantly different effluents than the 1966 and 1967 models, the 1960-1965 models, and the 1957-1959 models. Comparison of results from the older model year vehicles exhibit fewer and less strong significant differences, reflecting the lack of nationwide emission control prior to the 1968 model year.

SIGNIFICANT DIFFERENCES IN 1972 FEDERAL TEST RESULTS AMONG CITIES

City Comparison	HC	CO	CO_2	NO_xC
Denver vs (Los Angeles + Chicago + Houston + St. Louis + Washington) χ^2_C	86.6*	126.0*	45.0*	199.0*
D.F.	12	15	12	15
$\chi^2_{.05}$	21.0	25.0	21.0	25.0
Los Angeles vs (Chicago + Houston + St. Louis + Washington) χ^2_C	10.8	17.5	10.9	23.4
D.F.	12	15	12	15
$\chi^2_{.05}$	21.0	25.0	21.0	25.0
Chicago vs (Los Angeles + Houston + St. Louis + Washington) χ^2_C	10.0	17.3	27.4*	21.2
D.F.	12	15	12	15
$\chi^2_{.05}$	21.0	25.0	21.0	25.0
Houston vs (Los Angeles + Chicago + St. Louis + Washington) χ^2_C	5.7	32.0*	15.2	14.9
D.F.	12	15	12	15
$\chi^2_{.05}$	21.0	25.0	21.0	25.0
St. Louis vs (Los Angeles + Chicago + Houston + Washington) χ^2_C	26.1*	14.5	20.8	22.9
D.F.	12	15	12	15
$\chi^2_{.05}$	21.0	25.0	21.0	25.0
Washington vs (Los Angeles + Chicago + Houston + St. Louis) χ^2_C	15.6	30.4*	19.8	95.5*
D.F.	12	15	12	15
$\chi^2_{.05}$	21.0	25.0	21.0	25.0

*Significant Differences Between Distributions

SIGNIFICANT DIFFERENCES IN 1972 FEDERAL TEST RESULTS AMONG MODEL YEARS FOR FIVE CITIES EXCLUDING DENVER

Model Year (Abbreviated)	HC	CO	CO_2	NO_xC
(70-71) vs (68-69) χ^2_C	58.7*	49.5*	49.3*	18.0
D.F.	8	9	8	9
$\chi^2_{.05}$	15.5	16.9	15.5	16.9
(70-71) vs (66-67) χ^2_C	154.1*	117.5*	76.3*	70.1*
D.F.	8	9	8	9
$\chi^2_{.05}$	15.5	16.9	15.5	16.9
(70-71) vs (60-65) χ^2_C	232.3*	137.3*	117.3*	81.5*
D.F.	8	9	8	9
$\chi^2_{.05}$	15.5	16.9	15.5	16.9
(70-71) vs (57-59) χ^2_C	183.0*	157.4*	59.1*	46.0*
D.F.	8	9	8	9
$\chi^2_{.05}$	15.5	16.9	15.5	16.9
(68-69) vs (66-67) χ^2_C	47.2*	39.6*	33.2*	51.5*
D.F.	8	9	8	9
$\chi^2_{.05}$	15.5	16.9	15.5	16.9
(68-69) vs (60-65) χ^2_C	91.1*	43.2*	270.4*	53.5*
D.F.	8	9	8	9
$\chi^2_{.05}$	15.5	16.9	15.5	16.9
(68-69) vs (57-59) χ^2_C	39.3*	10.2	31.4*	23.6*
D.F.	8	9	8	9
$\chi^2_{.05}$	15.5	16.9	15.5	16.9
(66-67) vs (60-65) χ^2_C	8.4	5.9	17.5*	8.4
D.F.	8	9	8	9
$\chi^2_{.05}$	15.5	16.9	15.5	16.9
(66-67) vs (57-59) χ^2_C	6.9	13.4	3.8	23.5*
D.F.	8	9	8	9
$\chi^2_{.05}$	15.5	16.9	15.5	16.9
(60-65) vs (57-59) χ^2_C	11.9	10.3	12.3	14.7
D.F.	8	9	8	9
$\chi^2_{.05}$	15.5	16.9	15.5	16.9

Significant Differences Between Distributions

APPENDIX

4.1 VEHICLE INFORMATION

This section contains vehicle information for each test car in each of the six cities. The following is a description of the various abbreviations used in the headings.

HEADING	DESCRIPTION
CAR #	This is a four digit number assigned each test vehicle at each facility. All Project 210 car numbers will use zero (0) as the first digit. The order and format of test vehicles in this section are identical to that in all sections of the appendix. This arrangement is used to permit easy determination of vehicle identification.
RUN #	RUN # is a four digit sequential run number. An "R" following the RUN # identifies replicate tests.
YR.	This is a two digit number indicating the model year of the test vehicle.
MAKE	This is a four character word specifying the make of vehicle. The first four characters of the vehicle make are always to be used. For example: Ford = FORD, Chevrolet = CHEV, Buick = BUIC, Volkswagen = VOLK.
MODEL	This is a five letter word specifying the model of the vehicle. For example: Wildcat = WILDC, Ford LTD = LTD, Pontiac Lemans = LEMAN, etc.
CID	This is a three digit number indicating the cubic inch displacement of the test vehicle. In the case of small displacement engines round off to the nearest unit displacement. For example: Volkswagen = 96.6 cubic inches displacement. Input should be 097.
BBL	This indicates the number of carburetor barrels or venturis. If a given vehicle has fuel injection, an F should be inserted instead of the number for venturis. A vehicle with multiple carburetion would be entered as total number of venturis. Example: 3 - 2 BBLs = 6.
TRN	This is a single digit number. It indicates the type of transmission used. 0 = Automatic; 3, 4, 5, 6 = Manual; specify number of gears.
CYL	Indicates the number of cylinders in the test vehicle engine. Single digit number.

HEADING	DESCRIPTION
A/C	A single digit number to indicate the presence of an air conditioning system on the test vehicle. 0 = no air conditioner; 1 = equipped with air conditioner.
INRT	INRT designates the inertia of the vehicle as a four digit number. Correct inertia may be obtained from the Federal Register, Volume 35, No. 219, Part II, page 17296.
RDHP	RDHP is the road horsepower setting for the given test vehicle on the dynamometer. The Federal Register will provide the correct load settings.
ODOMR	This is a five digit number indicating the odometer reading of the test vehicle at the start of the test. Any ODOMR listed as 99999, indicates that the test vehicle mileage was 100,000 miles or greater.
FT	A two digit number indicating the fuel tank capacity of the test vehicle. Round off to the nearest gallon.
EVP	This is a single digit number indicating whether or not the test vehicle is equipped with an evaporative emissions control device. 0 = no evaporative emission device present; 1 = the test vehicle is equipped with such a device.
EXH	EXH is a single digit which indicates the presence of an exhaust emissions control system and its type. 0 = no exhaust controls 1 = engine modifications type 2 or 3 = air injection device 4 = catalytic reactor 5 = afterburner
PCV	This indicates the presence of a positive Crankcase Ventilation system. 0 = no PCV control unit; 1 = PCV system present.
VTP	Vehicle type is a three digit code. Use only the first blank. 0 = lightweight vehicle; 1 = off-road vehicle.
DB	This is a two digit number indicating the dry bulb temperature in °F.
WB	This is a two digit number indicating the wet bulb temperature in °F.
BAROM	BAROM is a four digit number indicating the barometric pressure in inches of mercury.

HEADING	DESCRIPTION
IRPM	Idle speed in revolutions per minute measured in drive or neutral.
D/N	Drive or neutral.
DWEL	Distributor ignition dwell in degrees.
IGNT	Basic ignition timing; + indicates before top center; - indicates after top center. Absence of + or - indicates that timing was before top center.
ICO	Measurement of undiluted carbon monoxide at idle in percent.

Carbon monoxide measurements of undiluted exhaust during idle were inadvertently omitted during the first 40 tests in Los Angeles. However, dilute CO measurements were made. A linear regression equation with three independent variables was used to estimate the missing idle CO measurements. The independent variables were CID, IRPM, and dilute CO values. Using 126 Los Angeles tests with idle CO readings the following regression equation was developed:

$$\text{Idle CO} = 3.73979 - .00439\ (\text{CID}) - .00176\ (\text{IRPM}) + .00106\ (\text{Dilute CO})$$

CAR#	RUN#	YR	MAKE	MODEL	CID	BBL	TRN	CYL	A/C	INRT	RDHP	ODOMR	FT	EVP	EHV	EXC	PCV	VTP	DS	WB	BAROM	IRPM	D/N	DWEL	IGNT	ICO	DATE	TIME	PIC
0170	0446	71	BUIC	LESAB	350	2	0	8	1	4500	14.0	14177	25	1	1	1	0		73	63	30.00	660	D	29.0	0.0	3.9	04/29/72	0950	RWK
0156	0427	70	BUIC	ELECT	455	4	0	8	1	4500	14.0	33832	25	1	1	1	0		74	61	30.12	950	D	30.0	-2.0	2.9	04/24/72	1000	RWK
0046	0189	69	BUIC	SKYLA	350	4	0	8	1	3500	12.3	58666	20	0	1	1	0		78	64	30.10	620	D	32.0	0.0	1.5	12/15/71	1230	MEC
0046	0206R	69	BUIC	SKYLA	350	4	0	8	1	3500	12.3	58708	20	0	1	1	0		79	66	30.20	620	D	32.0	0.0	1.5	12/20/71	1000	MEC
0112	0340	68	BUIC	RIVIE	430	4	0	8	1	4500	14.0	24774	21	0	1	1	0		73	61	30.11	600	D	34.0	0.0	0.3	03/28/72	1500	RWK
0081	0271	67	BUIC	WILDC	430	2	0	8	1	4500	14.0	19362	25	0	3	1	0		68	58	30.05	590	D	33.0	-6.0	1.2	01/17/72	0830	MEC
0111	0353	66	BUIC	SPECI	300	2	0	8	0	4700	12.0	65870	20	0	3	1	0		77	73	30.17	460	D	26.0	0.0	2.2	03/31/72	1115	REK
0065	0242	65	BUIC	SKYLA	300	2	0	8	0	3500	11.2	77922	20	0	0	1	0		72	58	29.88	610	D	16.0	18.0	5.0	01/03/72	0740	MEC
0124	0371	64	BUIC	RIVIE	425	4	0	8	1	4000	14.0	83200	20	0	0	1	0		70	61	30.00	480	D	34.0	-3.0	0.7	04/05/72	2353	REM
0151	0415	63	BUIC	WILDC	401	4	0	8	1	4500	14.0	76541	20	0	0	1	0		68	59	30.00	440	D	30.0	5.0	2.2	04/18/72	2200	ADH
0076	0269	62	BUIC	LESAB	401	2	0	8	0	4000	12.0	28379	20	0	0	1	0		71	63	30.12	600	D	27.0	12.0	4.7	01/14/72	0800	MEC
0095	0328	61	BUIC	ELECT	401	4	0	8	0	3500	11.2	99999	20	0	0	1	0		75	60	30.03	600	D	26.0	4.0	9.4	03/24/72	1112	RWK
0069	0247	70	CADI	SEDAN	472	4	0	8	1	5000	14.7	45689	26	1	1	1	0		80	66	30.30	670	D	34.0	0.0	6.6	01/04/72	0105	MEC
0131	0402	69	CADI	DEVIL	472	4	0	8	1	5000	14.7	29198	26	0	3	1	0		75	60	30.05	620	D	29.0	2.0	1.7	04/14/72	1415	RWK
0092	0311	63	CADI	DEVIL	390	4	0	8	1	5000	14.7	79865	26	0	0	1	0		72	62	30.12	540	D	30.0	10.0	2.2	03/15/72	1145	RWK
0169	0444	60	CADI	DEVIL	390	4	0	8	0	5000	13.4	84821	21	0	0	1	0		68	65	30.00	700	D	30.0	5.0	3.4	04/28/72	2100	ADH
0001	0001	57	CADI	LIMOS	365	4	0	8	0	5500	13.9	97620	20	0	0	0	0		70	63	29.90	525	D	27.0	13.0	7.4	10/27/71	1700	ROM
0041	0165	71	CHEV	CAMAR	350	2	0	8	1	3500	12.3	26924	17	1	1	1	0		72	53	30.21	480	D	31.0	5.0	2.3	12/09/71	1130	MEC
0049	0183	71	CHEV	CHEVE	350	2	0	8	1	3500	12.3	11370	20	1	1	1	0		74	59	30.10	550	D	30.0	6.0	0.5	12/14/71	0800	MEC
0048	0184	71	CHEV	CHEVE	350	2	0	8	1	3500	12.3	17940	20	1	1	1	0		72	58	30.10	550	D	30.0	6.0	0.5	12/14/71	1100	MEC
0099	0315	71	CHEV	VEGA	140	1	0	4	0	2500	9.4	9723	11	1	1	1	0		70	60	30.09	600	D	34.0	13.0	0.1	03/18/72	0950	RWK
0125	0365	71	CHEV	CAPRI	400	4	0	8	1	4000	13.2	14213	24	1	1	1	0		82	70	30.08	590	D	23.0	7.5	3.5	04/04/72	0100	REM
0013	0052	70	CHEV	CHEVE	350	2	0	8	1	3500	12.3	24646	20	1	1	1	0		77	61	30.79	600	D	28.0	4.0	2.3	11/12/71	1000	MEC
0062	0235	70	CHEV	CONCO	307	2	0	8	1	4000	13.2	42259	18	0	1	1	0		72	60	30.31	760	D	29.0	10.0	1.2	12/29/71	0730	MEC
0167	0439	70	CHEV	NOVA	230	1	0	6	0	3000	10.3	2826	18	1	1	1	0		77	66	30.03	380	D	31.0	0.0	7.1	04/27/72	1520	RWK
0168	0442	70	CHEV	NOVA	307	2	0	8	1	3500	12.3	19136	18	1	1	1	0		75	63	30.09	680	D	24.0	13.0	.3	04/28/72	0945	RWK
0005	0035	69	CHEV	IMPAL	327	2	0	8	1	4500	14.0	29343	24	0	1	1	0		75	58	30.20	575	D	30.0	4.0	2.8	11/03/71	0915	JTB
0003	0193	67	CHEV	CAMAR	307	2	3	8	0	3500	11.2	31381	18	0	3	1	0		68	51	30.40	720	N	30.0	4.0	2.0	12/16/71	1040	MEC
0060	0232	69	CHEV	CONCO	350	4	0	8	1	4000	13.2	41243	18	0	1	1	0		73	60	30.12	670	D	30.0	8.0	1.3	12/28/71	0800	MEC
0007	0370	69	CHEV	IMPAL	350	2	0	8	1	4000	13.2	21899	24	0	1	1	0		75	58	29.95	550	D	31.0	6.0	4.4	04/06/72	1205	RWK
0014	0112	68	CHEV	NOVA	250	1	0	8	1	3000	11.3	37393	18	0	1	1	0		71	59	30.10	590	D	35.0	4.0	2.6	11/18/71	1150	JTB
0136	0383	68	CHEV	NOVA	230	2	0	6	0	3500	11.2	57197	19	0	1	1	0		73	61	30.10	540	D	28.0	6.0	8.4	04/10/72	2200	ADH
0152	0420	68	CHEV	STAWA	327	4	0	8	1	4000	13.2	47058	20	0	1	1	0		68	59	30.10	570	D	26.0	4.0	2.8	04/19/72	1900	ADH
0152	0429R	68	CHEV	STAWA	327	4	0	8	1	4000	13.2	47565	20	0	1	1	0		68	60	30.00	570	D	26.0	4.0	3.6	04/24/72	1800	ADH
0016	0126	67	CHEV	CAPRI	350	4	0	8	1	4000	13.2	67205	24	0	3	1	0		69	56	30.15	570	D	28.0	3.0	1.9	11/22/71	1300	ROM
0039	0159	67	CHEV	CHEVE	283	2	0	8	0	3500	11.2	67005	20	0	0	1	0		70	55	30.21	660	D	30.0	5.0	2.3	12/08/71	1015	MEC
0083	0274	67	CHEV	IMPAL	396	4	0	8	1	4000	13.2	52346	25	0	3	1	0		70	58	30.12	575	D	30.0	4.0	2.4	01/18/72	1400	REM
0097	0377	67	CHEV	STAWA	327	4	0	8	1	4000	13.2	65810	24	0	3	1	0		73	63	30.02	465	D	33.0	5.0	2.5	04/07/72	1630	ADH
0021	0132	66	CHEV	IMPAL	327	4	0	8	1	4000	13.2	80017	20	0	3	1	0		75	60	29.98	500	D	27.0	6.0	3.4	11/29/71	0800	MEC
0024	0134	66	CHEV	MONZA	164	2	4	6	0	2750	9.9	47799	14	0	0	1	0		70	58	29.98	850	N	26.0	22.0	2.7	11/30/71	0900	MEC
0061	0236	66	CHEV	BELAI	283	2	0	8	0	4000	12.0	57224	22	0	3	1	0		68	52	30.30	560	D	32.0	4.0	3.0	12/29/71	0840	MEC
0109	0338	66	CHEV	BELAI	283	2	0	8	0	3500	11.2	54577	20	0	3	1	0		67	62	30.18	580	D	26.0	5.0	.4	03/28/72	0920	RWK
0025	0139	65	CHEV	IMPAL	283	2	0	8	0	4000	12.0	81545	20	0	0	1	0		71	59	30.74	400	D	27.0	16.0	1.9	12/01/71	1320	MEC
0070	0245	65	CHEV	IMPAL	327	4	0	8	1	4000	13.2	59384	20	0	0	1	0		73	54	30.33	560	D	28.0	-8.0	2.2	01/03/72	0730	MEC
0091	0284	65	CHEV	CORVE	327	F	4	8	0	3500	11.2	99999	16	0	0	1	0		71	58	30.11	900	N	35.0	-10.0	2.0	01/25/72	1000	MEC
0089	0286	65	CHEV	MALIB	283	2	0	8	0	3500	11.2	90752	20	0	0	1	0		70	60	30.16	600	D	34.0	-14.0	4.9	01/21/72	1430	REM
0031	0145	64	CHEV	NOVA	194	1	0	6	0	3000	10.3	46051	16	0	0	1	0		71	59	30.16	400	D	22.0	4.0	3.6	12/03/71	0800	MEC
0055	0224	64	CHEV	NOVA	230	1	0	6	0	3000	10.3	99999	16	0	0	1	0		74	64	30.31	700	D	35.0	0.0	2.8	12/23/71	0945	MEC
0080	0270	64	CHEV	CHEVE	283	2	0	8	0	3500	11.2	54029	18	0	0	1	0		78	66	30.12	570	D	25.0	-12.0	5.2	01/14/72	0900	MEC
0132	0378	64	CHEV	LOTRU	230	2	3	6	0	4000	12.0	82621	20	0	0	1	0		72	61	30.07	1050	N	30.0	6.0	6.3	04/07/72	1900	ADH

CAR#	RUN#	YR	MAKE	MODEL	CID	BBL	TRN	CYL	A/C	INRT	RDHP	ODOMR	FT	EVP	EXH	PCV	VTP	DB	WB	BAROM	IRPM	D/N	DWFL	IGNT	ICO	DATE	TIME	PIC
0085	0275	63	CHEV	CORVA	145	2	4	6	0	2750	9.9	53494	10	0	0	0	0	68	57	30.22	510	N	24.0	-8.0	4.3	01/19/71	0925	REM
0087	0277	63	CHEV	NOVA	194	1	0	6	0	3000	10.3	39227	16	0	0	1	0	68	55	30.29	420	D	24.0	-14.0	2.3	01/20/72	1009	REM
0108	0333	63	CHEV	BELAI	283	2	0	8	1	3500	12.3	82742	20	0	0	0	0	68	58	30.30	465	D	27.5	4.5	5.3	03/27/72	1046	REM
0050	0188	62	CHEV	BELAI	283	2	0	8	1	3500	12.3	99999	20	0	0	1	0	74	59	30.12	410	D	33.0	14.0	6.2	12/15/71	1045	MEC
0100	0382	62	CHEV	IMPAL	327	2	0	8	0	4000	12.0	63570	19	0	0	1	0	74	60	30.00	480	D	31.0	6.0	8.9	04/10/72	1730	ADH
0100	0382R	62	CHEV	IMPAL	327	2	0	8	0	4000	12.0	63572	19	0	0	1	0	75	65	30.10	460	D	31.0	6.0	6.6	04/11/72	1900	ADH
0162	0434	62	CHEV	IMPAL	283	2	0	8	0	4000	12.0	57989	20	0	0	0	0	68	62	29.98	620	D	27.0	12.0	1.7	04/26/72	0755	RWK
0154	0425	61	CHEV	NOMAD	283	4	0	8	0	4000	12.0	65909	20	0	0	0	0	69	62	30.02	560	D	28.0	3.0	3.3	04/22/72	1000	ADH
0064	0237	60	CHEV	ELCAM	283	2	0	8	0	3500	11.2	99999	20	0	0	1	0	71	56	30.23	570	D	31.0	-14.0	3.6	12/30/71	0750	MEC
0140	0394	59	CHEV	IMPAL	283	2	0	8	0	4000	12.0	90195	20	0	0	0	0	68	56	30.02	500	D	25.0	9.0	.2	04/12/72	2240	ADH
0020	0131	58	CHEV	CORVE	283	4	0	8	0	2750	9.9	95270	15	0	0	0	0	72	60	30.12	550	D	28.0	10.0	5.1	11/24/71	0800	MEC
0174	0465	58	CHEV	BELAI	283	2	3	8	0	3500	11.2	78083	20	0	0	0	0	75	65	30.13	430	N	16.0	12.0	3.2	05/08/72	1130	RWK
0006	0036	57	CHEV	BELAI	283	4	3	8	0	3500	11.2	45778	20	0	0	0	0	82	56	30.10	600	N	32.0	8.0	1.6	11/24/71	1000	JTB
0164	0450	71	CHRY	IMPER	440	4	0	8	1	5000	14.7	15654	23	1	1	1	0	75	65	30.05	1000	D	33.0	2.0	.2	05/07/72	1150	RWK
0037	0153	69	CHRY	WAGON	440	4	0	8	1	5000	14.7	22334	22	0	1	1	0	72	60	29.93	500	D	35.0	8.0	3.8	12/07/71	1030	MEC
0127	0366	67	CHRY	STAWA	383	2	0	8	1	4500	14.0	40144	18	0	1	1	0	78	65	30.02	660	D	29.0	4.8	3.3	04/04/72	1746	REM
0130	0373	66	CHRY	NEWPO	383	4	0	8	1	4000	13.2	63540	25	0	1	1	0	72	62	30.11	620	D	29.0	6.0	.4	04/05/72	0945	RWK
0072	0250	71	DODG	WAGON	383	2	0	8	1	4000	13.2	33811	21	1	1	1	0	73	57	30.32	565	D	35.0	0.0	8.0	01/05/72	0810	MEC
0117	0348	69	DODG	DART	225	2	0	6	1	3000	11.3	22000	18	0	1	1	0	79	74	30.09	550	D	33.5	-2.5	2.0	03/30/72	0315	RWK
0135	0379	68	DODG	DART	225	2	0	6	1	3000	11.3	17826	18	0	1	1	0	83	64	30.10	700	D	42.0	1.0	5.3	04/08/72	1400	ADH
0088	0281	67	DODG	CORON	333	2	0	8	1	3500	12.3	64679	19	1	1	1	0	73	59	30.18	700	D	26.0	12.0	0.6	01/21/72	1330	MEC
0086	0276	66	DODG	WAGON	383	2	0	8	0	4000	12.0	58550	19	0	1	1	0	68	53	30.23	500	D	29.0	0.0	2.5	01/19/72	1043	REM
0026	0138	65	DODG	POLAR	383	2	0	8	1	4000	13.2	39334	25	0	0	1	0	72	60	30.13	515	D	33.0	10.0	3.0	12/01/71	0830	MEC
0176	0475	57	DODG	LOTRU	230	1	3	6	0	4000	12.0	99999	18	0	0	1	0	80	70	29.98	720	N	50.0	22.0	3.5	05/15/72	1500	RWK
0033	0146	71	FORD	PINTO	122	2	0	4	0	2000	8.3	8137	11	1	1	1	0	69	58	30.12	520	D	42.0	4.0	3.7	12/03/71	1000	MEC
0068	0246	71	FORD	LTD	429	2	0	8	1	4000	13.2	10276	23	1	1	1	0	76	55	30.35	550	D	23.0	10.0	2.2	01/04/72	0845	MEC
0067	0251	71	FORD	PINTO	122	1	0	4	0	2250	8.8	11954	14	1	1	1	0	70	55	30.23	810	D	60.0	8.0	3.7	01/05/72	0915	MEC
0071	0254	71	FORD	PINTO	098	2	4	4	0	2250	8.8	11111	11	1	1	1	0	81	59	30.22	1200	N	48.0	10.0	6.5	01/06/72	1030	MEC
0133	0376	71	FORD	PINTO	098	2	4	4	0	2250	8.8	19868	11	1	1	1	0	78	76	30.06	980	N	45.0	7.0	.1	04/07/72	1145	RWK
0133	0381R	71	FORD	PINTO	098	2	4	4	0	2250	8.8	19809	11	1	1	1	0	76	64	30.07	500	N	44.0	4.0	.3	04/12/72	1154	REK
0004	0032	70	FORD	MAVER	200	1	0	6	0	2750	9.9	6367	20	1	1	1	0	80	56	30.22	700	D	34.0	6.0	3.5	11/02/71	1030	RWM
0015	0078	70	FORD	MUSTA	351	2	0	8	1	3000	11.3	27999	20	1	1	1	0	72	55	29.92	610	D	30.0	5.0	1.2	11/15/71	1500	RQM
0023	0136	70	FORD	TORIN	302	2	0	8	1	3500	12.3	21889	20	1	1	1	0	75	63	30.05	600	D	28.0	6.0	4.5	11/30/71	0815	MEC
0134	0380	70	FORD	MAVER	200	2	0	6	1	2750	10.9	15474	12	1	1	1	0	75	66	30.08	460	D	41.0	-3.0	1.6	04/10/72	0905	RWK
0134	0380R	70	FORD	MAVER	200	2	0	6	1	2750	10.9	15501	12	1	1	1	0	80	64	30.19	620	D	43.0	3.0	.8	04/12/72	0927	RWK
0146	0405	70	FORD	MUSTA	351	4	0	8	1	3500	12.3	41360	20	1	1	1	0	73	61	30.16	580	D	28.5	7.0	0.3	04/15/72	0815	RWK
0010	0042	69	FORD	MUSTA	351	2	0	8	0	3000	10.3	65579	20	0	1	1	0	74	67	30.18	635	D	30.0	7.0	5.0	11/23/71	1300	RQM
0012	0051	69	FORD	MUSTA	351	4	0	8	1	3000	11.3	25250	20	0	1	1	0	78	61	30.20	600	D	32.0	4.0	2.3	11/11/71	1030	RQM
0139	0391	69	FORD	TORIN	351	4	0	8	1	3500	12.3	40359	20	0	1	1	0	72	62	30.13	600	D	23.0	5.0	3.5	04/12/72	0145	RWK
0009	0039	68	FORD	MUSTA	200	1	3	6	0	3000	10.3	42233	16	0	3	1	0	72	54	30.18	690	N	35.0	3.0	1.9	11/08/71	1400	RQM
0040	0166	68	FORD	MUSTA	289	2	0	8	0	3000	10.3	48422	16	0	1	1	0	74	57	30.18	450	D	25.0	8.0	4.4	12/09/71	1005	MEC
0093	0313	67	FORD	FAIRL	289	2	0	8	0	3500	11.2	72720	20	0	3	1	0	71	63	30.12	500	D	30.0	8.0	0.7	03/16/72	1030	RWK
0114	0343	67	FORD	FALCO	170	1	3	6	0	2750	9.9	54348	16	0	1	1	0	77	73	30.08	760	N	39.0	7.0	0.3	03/29/72	0930	RWK
0115	0350	67	FORD	GALAX	390	4	0	8	1	4000	13.2	52649	24	0	1	1	0	74	60	30.10	580	D	22.0	11.0	4.2	03/30/72	2030	REM
0017	0129	66	FORD	GALAX	352	4	0	8	1	4000	13.2	80769	25	0	3	1	0	68	56	30.18	550	D	36.0	8.0	3.0	11/23/71	1100	RQM
0063	0238	66	FORD	MUSTA	289	2	0	8	0	3000	10.3	41596	16	0	3	1	0	70	55	30.23	550	D	33.0	6.0	6.0	12/30/71	0805	MEC
0075	0253	66	FORD	MUSTA	289	2	0	8	1	3000	11.3	80391	16	0	3	1	0	75	57	30.21	950	D	21.0	25.0	0.1	01/06/72	0910	MEC
0137	0388	66	FORD	LOTRU	352	2	0	8	0	4000	12.0	83842	20	0	3	1	0	75	65	30.12	700	D	30.0	-4.0	4.4	04/11/72	2000	ADH
0144	0406	66	FORD	MUSTA	289	2	0	8	0	3000	10.3	99999	16	0	3	1	0	75	62	30.17	700	D	26.0	0.0	0.5	04/15/72	0950	RWK
0030	0143	65	FORD	CUSTO	289	2	3	8	1	4000	13.2	53649	20	0	0	1	0	72	60	30.22	600	N	20.0	10.0	2.7	12/02/71	0810	MEC

CAR#	RUN#	YR	MAKE	MODEL	CID	BBL	TRN	CYL	A/C	INRT	RDHP	ODOMR	FT	EVP	EXH	PCV	VTP	DB	WB	BAROM	IRPM	D/N	DWEL	IGNT	ICO	DATE	TIME	PIC
0066	0243	65	FORD	GALAX	289	2	0	8	1	3500	12.3	64815	22	0	0	1	0	77	62	29.90	540	D	26.0	6.0	3.0	01/03/72	0850	MEC
0145	0404	65	FORD	MUSTA	289	2	0	8	0	3000	10.3	60251	16	0	0	1	0	70	57	30.05	520	D	30.0	-2.0	2.4	04/14/72	2100	ADH
0153	0418	65	FORD	MUSTA	289	2	0	8	0	3000	10.3	65450	16	0	0	1	0	71	60	30.08	660	D	45.0	0.0	0.8	04/19/72	1315	RWK
0110	0344	64	FORD	FALCO	289	2	4	8	0	3000	10.3	59886	20	0	0	1	0	78	75	30.05	560	N	28.0	2.0	5.1	03/29/72	0120	RWK
0113	0346	64	FORD	XL500	352	4	0	8	0	3500	11.2	73320	20	0	1	0	0	69	57	30.00	490	D	28.5	2.5	2.9	03/29/72	1900	REM
0110	0356R	64	FORD	FALCO	289	2	4	8	0	3000	10.3	57918	14	0	0	1	0	72	60	30.10	550	N	28.0	3.0	3.0	03/31/71	2130	REM
0044	0173	63	FORD	FAIRL	260	2	0	8	0	3000	10.3	99999	17	0	0	1	0	69	56	30.03	675	D	21.0	3.0	7.0	12/13/71	1030	MEC
0047	0174	63	FORD	FAIRL	260	2	0	8	0	3000	10.3	93549	17	0	0	1	0	72	57	30.01	450	D	14.0	5.0	6.5	12/13/71	1200	MEC
0106	0335	62	FORD	GALAX	390	4	0	8	0	4000	12.0	56124	20	0	0	0	0	74	67	30.03	540	D	25.5	2.5	1.5	03/27/72	0615	RWK
0143	0398	61	FORD	FALCO	170	1	0	6	0	2750	9.9	77647	15	0	0	1	0	68	56	29.97	620	D	40.0	-3.0	1.4	04/13/72	2051	RWK
0058	0223	60	FORD	WAGON	352	2	0	8	0	4000	12.0	78355	20	0	0	1	0	71	63	30.32	450	D	32.0	6.0	3.2	12/23/71	0830	MEC
0058	C229R	60	FORD	WAGON	352	2	0	8	0	4000	12.3	78335	20	0	0	1	0	70	59	29.99	450	D	32.0	6.0	3.2	12/27/71	1000	MEC
0090	0282	59	FORD	FAIRL	292	2	0	8	0	4000	12.0	96108	19	0	0	0	0	71	60	30.18	550	D	32.0	-4.0	8.0	01/24/72	1000	REM
0096	0312	58	FORD	FAIRL	332	4	0	8	0	3500	11.2	72217	20	0	0	1	0	70	59	30.09	700	D	27.0	-6.0	2.8	03/17/72	0920	RWK
0178	0473	58	FORD	LDTRU	292	2	3	8	0	4000	12.0	99999	20	0	0	1	0	70	66	29.95	1000	N	44.0	4.0	1.6	05/15/72	0915	RWK
0002	0233	57	FORD	MAINL	223	1	3	6	0	3500	11.2	33196	18	0	0	1	0	72	60	30.16	870	N	39.0	8.0	3.2	12/23/71	0920	MEC
0181	0479	57	FORD	SEDAN	292	2	0	8	0	4000	12.0	99999	18	0	0	0	0	73	66	30.01	500	D	29.0	4.0	4.0	05/16/72	1700	RWK
0161	0437	67	LINC	CONTI	462	4	0	8	1	5500	15.8	37028	25	0	3	1	0	72	62	29.95	500	D	31.5	-2.5	.1	04/26/72	2000	ADH
0038	0158	71	MERC	COUGA	351	2	0	8	1	3500	12.3	16601	20	1	1	1	0	69	55	30.23	600	D	34.0	11.0	1.2	12/09/71	0810	MEC
0056	0217	69	MERC	COUGA	351	2	0	8	0	3500	11.2	43504	20	0	1	1	0	71	64	30.14	550	D	45.0	8.0	3.3	12/22/71	1035	MEC
0119	0352	67	MERC	COUGA	390	4	0	8	1	3500	12.3	59664	17	0	3	1	0	75	71	30.13	560	D	44.0	0.0	3.5	03/31/72	0950	RWK
0082	0273	66	MERC	MONTC	390	2	0	8	1	4000	13.2	57002	25	0	3	1	0	69	60	30.18	550	D	32.0	4.0	0.8	01/18/72	0945	MEC
0078	0256	65	MERC	MONTE	390	4	0	8	1	4000	13.2	99999	18	0	0	1	0	70	61	30.12	540	D	29.0	10.0	7.7	01/07/72	1145	MEC
0094	0325	63	MERC	COMET	200	1	0	6	0	3000	10.3	90621	14	0	0	0	0	77	61	30.10	800	D	33.0	10.0	.8	03/23/72	1115	RWK
0182	0477	71	OLDS	98	455	4	0	8	1	4500	14.0	6155	25	1	1	1	0	75	65	30.01	620	D	30.0	2.0	.6	05/16/72	1027	RWK
0104	0316	70	OLDS	CUTLA	455	2	0	8	1	4000	13.2	28609	20	1	1	1	0	70	59	30.12	620	D	45.0	-3.0	3.1	03/20/72	1045	RWK
0104	0322R	70	OLDS	CUTLA	455	2	0	8	1	4000	13.2	28644	20	1	1	1	0	78	70	30.09	560	D	30.0	2.0	3.2	03/22/72	0215	RWK
0022	0135	68	OLDS	CUTLA	350	2	0	8	1	3500	12.3	51911	20	0	1	1	0	73	61	30.00	560	D	29.0	2.0	2.5	11/30/71	1110	MEC
0148	0410	68	OLDS	CUTLA	250	1	0	6	0	3500	11.2	27127	20	0	1	1	0	69	58	29.96	800	D	36.0	3.0	1.8	04/18/72	0130	ADH
0077	0255	65	OLDS	CUTLA	330	4	0	8	0	3500	11.2	49935	18	0	0	1	0	73	62	30.14	635	D	32.0	-13.0	6.6	01/07/72	0930	MEC
0054	0211	64	OLDS	NINET	394	4	0	8	1	4500	14.0	89761	21	0	0	1	0	77	61	30.23	640	D	22.0	8.0	4.2	12/21/71	0840	MEC
0173	0463	63	OLDS	88	394	2	0	8	1	4500	14.0	13639	21	0	0	1	0	68	61	30.07	580	D	29.0	10.0	6.7	05/06/72	1000	ADH
0101	0321	62	OLDS	EIGHT	394	4	0	8	0	4000	12.0	96907	21	0	0	1	0	78	65	30.13	740	D	22.0	6.0	.5	03/22/72	0955	RWK
0166	0456	61	OLDS	SUPER	394	4	0	8	1	4000	13.2	99999	20	0	0	1	0	72	62	30.01	600	D	30.0	11.0	5.4	05/04/72	1600	ADH
0183	0478	58	OLDS	SUPER	371	4	0	8	0	4500	12.7	99999	20	0	0	0	0	70	63	30.00	760	D	21.0	13.0	1.5	05/16/72	0920	RWK
0179	0482	58	OLDS	EIGHT	371	2	0	8	0	4500	12.7	99999	20	0	0	1	0	76	70	30.00	500	D	27.0	13.0	3.7	05/17/72	1700	RWK
0159	0433	57	OLDS	FIEST	371	4	0	8	0	4000	12.0	99999	20	0	0	0	0	74	63	30.00	750	D	45.0	8.0	4.4	04/25/72	1545	RWK
0126	0374	71	PLYM	DUSTE	318	2	0	8	0	3000	10.3	17413	17	1	1	1	0	79	64	30.10	720	D	30.0	6.0	3.4	04/06/72	1855	REM
0128	0367	70	PLYM	SATEL	318	2	0	8	0	4000	12.0	23100	19	1	1	1	0	69	62	30.03	750	D	27.0	0.0	4.1	04/04/72	2033	REM
0129	0369	69	PLYM	SATEL	318	2	0	8	1	3500	12.3	39306	19	0	1	1	0	85	75	30.08	800	D	24.0	4.5	3.6	04/05/72	1000	REM
0036	0148	66	PLYM	BARRA	318	2	0	8	1	3500	12.3	21728	19	0	1	1	0	71	58	30.02	600	D	30.0	10.0	2.1	12/06/71	1100	JTB
0043	0170	66	PLYM	VALIA	225	1	0	6	1	3000	11.3	20449	18	0	1	1	0	73	58	30.19	580	D	44.0	0.0	0.9	12/10/71	0800	MEC
0158	0431	67	PLYM	BELVE	318	2	0	8	0	3500	11.2	34247	19	0	1	1	0	76	65	30.05	575	D	29.0	-2.0	1.8	04/25/72	0925	RWK
0107	0334	66	PLYM	FURY	383	4	0	8	1	4000	13.2	51384	25	0	1	1	0	73	62	30.03	600	D	33.0	4.5	.8	03/27/72	1250	REM
0079	0261	65	PLYM	BARRA	273	2	0	8	1	3000	11.3	79769	18	0	0	1	0	70	59	30.22	540	D	26.0	10.0	9.2	01/10/72	0950	MEC
0138	0393	58	PLYM	SUBUR	318	4	0	8	0	4000	12.0	94003	20	0	0	1	0	66	55	30.05	680	D	32.0	8.0	3.4	04/12/72	1830	ADH
0118	0355	71	PONT	GRAND	400	2	0	8	1	4000	13.2	37335	21	1	1	1	0	74	62	30.09	550	D	20.0	8.0	4.1	03/31/72	1755	REM
0027	0137	70	PONT	GTO	400	4	0	8	1	4000	13.2	20520	22	1	1	1	0	74	65	30.13	600	D	28.0	8.0	3.8	12/01/71	1010	MEC
0029	0142	69	PONT	GRAND	400	4	0	8	1	4000	13.2	38002	21	0	1	1	0	70	58	30.22	680	D	27.0	9.0	3.2	12/02/71	0805	MEC
0147	0409	68	PONT	GTO	400	4	0	8	1	4000	13.2	36634	22	0	1	1	0	71	64	29.95	620	D	31.0	6.0	1.0	04/17/72	2000	ADH

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CAR#	RUN#	YR	MAKE	MODEL	CID	BBL	TRN	CYL	A/C	INRT	RDHP	ODOMR	FT	EVP	EXH	PCV	VTP	DB	WB	BAROM	IRPM	D/N	DWEL	IGNT	ICO	DATE	TIME	PIC
0018	0130	67	PONT	CATAL	400	4	0	8	1	4500	14.0	73990	26	0	1	1	0	80	63	30.13	650	D	28.0	12.0	1.6	11/24/71	0800	MEC
0028	0144	67	PONT	BONNE	400	2	0	8	1	4500	14.0	67083	26	0	1	1	0	69	60	30.18	540	D	29.0	8.0	3.4	12/02/71	1115	MEC
0084	0272	66	PONT	BONNE	421	4	0	8	1	4500	14.0	51680	26	0	0	1	0	68	57	30.16	490	D	31.0	-8.0	4.3	01/18/72	0745	MEC
0150	0413	65	PONT	TEMPE	326	2	0	8	0	3500	11.2	57518	22	0	0	1	0	63	64	29.95	520	D	23.0	8.0	3.3	04/19/72	1600	ADH
0034	0149	64	PONT	LEMAN	326	2	0	8	1	3500	12.3	99999	21	0	0	1	0	73	60	30.01	550	D	30.0	10.0	3.0	12/06/71	1030	MEC
0155	0428	64	PONT	LEMAN	326	4	0	8	0	3500	11.2	86991	21	0	0	1	0	76	61	30.15	500	D	28.0	0.0	6.4	04/24/72	1105	RWK
0103	0319	61	PONT	TEMPE	195	1	0	4	0	3000	10.3	99999	15	0	0	0	0	72	62	30.10	460	D	60.0	5.0	1.0	03/21/72	1020	RWK
0123	0361	59	PONT	STARC	399	2	0	8	0	4500	12.7	29204	25	0	0	1	0	72	63	30.01	440	D	29.0	2.5	1.6	04/03/72	1635	REM
0171	0460	59	PONT	BONNE	389	4	0	8	1	4500	14.0	74024	22	0	0	1	0	70	62	30.09	600	D	30.0	-6.0	4.7	05/05/72	1100	RWK
0180	0480	58	PONT	STARC	370	4	0	8	0	4000	12.0	67341	20	0	0	1	0	70	64	30.00	520	D	28.0	15.0	4.1	25/16/72	2000	RWK
0177	0474	57	PONT	SUPER	347	4	0	8	0	4000	12.0	47051	20	0	0	1	0	75	66	29.97	1500	D	44.0	4.0	1.6	05/15/72	1130	RWK
0163	0435	71	RAMB	JAVEL	304	2	0	8	1	3500	12.3	20673	16	1	1	1	0	75	65	29.99	750	D	25.5	0.0	0.1	04/26/72	0905	RWK
0105	0331	69	RAMB	JAVEL	290	2	0	8	0	3500	11.2	59086	19	0	1	1	0	75	67	30.00	580	D	28.0	-5.0	2.2	03/25/72	1134	RWK
0142	0397	68	RAMB	AMERI	232	2	0	6	0	3000	10.3	33379	16	0	1	1	0	74	73	29.99	600	D	27.0	3.0	2.3	04/13/72	0150	ADH
0045	0194	65	RAMB	CLASS	287	2	0	8	0	3500	11.2	57715	16	0	0	1	0	72	53	30.37	730	D	29.0	5.0	4.5	12/15/71	1140	MEC
0073	0264	64	RAMB	AMERI	196	1	0	8	0	2750	9.9	55527	18	0	0	1	0	74	61	30.23	550	D	30.0	10.0	4.5	01/11/72	0930	MEC
0141	0396	63	RAMB	440	196	2	0	6	0	2750	9.9	73018	20	0	0	1	0	71	65	29.95	810	D	30.0	9.0	3.1	04/13/72	1000	ADH
0157	0424	63	STUD	LARK	170	1	3	6	0	3000	10.3	80885	18	0	0	1	0	69	62	30.00	900	N	53.0	-2.0	6.0	04/22/72	0830	ADH
0102	0314	71	VOLK	411	103	F	0	4	0	2750	9.9	2314	13	1	1	1	0	70	64	30.08	860	D	53.0	8.5	0.3	03/17/72	0830	RWK
0098	0329	71	VOLK	BEETL	097	1	4	4	0	2000	8.3	15233	11	1	1	1	0	76	60	30.00	850	N	53.0	00.0	2.4	03/24/72	0330	RWK
0032	0154	70	VOLK	BEETL	097	1	4	4	0	2000	8.3	17753	10	1	1	1	0	69	55	29.91	720	N	45.0	5.0	2.3	12/07/71	0805	MEC
0074	0252	70	VOLK	BEETL	097	1	4	4	0	2000	8.3	26139	10	1	1	1	0	69	53	30.22	1200	N	52.0	-12.0	1.5	01/06/72	0805	MEC
0019	0133	69	VOLK	BEETL	091	1	4	4	0	2000	8.3	27900	11	0	1	1	0	75	62	29.95	950	N	59.0	5.0	3.1	11/23/71	0900	MEC
0035	0147	69	VOLK	BEETL	091	1	0	4	0	2000	8.3	51331	11	0	1	1	0	68	61	30.04	850	D	60.0	5.0	4.2	12/06/71	0900	MEC
0053	0212	68	VOLK	BEETL	091	1	4	4	0	2000	8.3	45801	11	0	1	1	0	73	61	30.19	1000	N	58.0	8.0	7.5	12/21/71	1010	MEC
0053	0216R	68	VOLK	BEETL	091	1	4	4	0	2000	8.3	35809	11	0	1	1	0	70	62	30.20	1000	N	58.0	8.0	7.5	12/22/71	0915	MEC
0160	0432	68	VOLK	BEETL	091	1	4	4	0	2000	8.3	57501	10	0	1	1	0	75	70	30.04	900	N	70.0	-6.0	0.8	04/25/72	1415	RWK
0120	0358	67	VOLK	BEETL	091	1	4	4	0	2000	8.3	62287	11	0	0	1	0	81	62	30.11	1000	N	47.5	2.5	2.5	04/01/72	1200	REM
0149	0412	66	VOLK	BEETL	078	1	4	4	0	2000	8.3	68412	10	0	0	1	0	68	62	29.99	840	N	53.0	0.0	0.6	04/18/72	1130	RWK
0052	0207	65	VOLK	VAN	073	1	4	4	0	3000	10.3	79552	10	0	0	1	0	74	62	30.20	520	N	34.0	0.0	3.7	12/20/71	1200	MEC
0052	0257R	65	VOLK	VAN	073	1	4	4	0	3000	10.3	79711	10	0	0	1	0	72	60	30.08	850	N	37.0	10.0	0.3	01/07/72	1500	MEC
0057	0228	64	VOLK	BEETL	073	1	4	4	0	2000	8.3	77529	10	0	0	1	0	69	59	30.00	475	N	28.0	0.0	8.0	12/27/71	0800	MEC
0059	0234	60	VOLK	BEETL	073	1	4	4	0	2000	8.3	99999	10	0	0	1	0	74	61	30.13	400	N	35.0	10.0	4.0	12/28/71	1530	MEC
0051	0197	71	MISC	DATSU	098	1	4	4	0	2500	9.4	10405	11	1	1	1	0	73	52	30.24	650	N	49.0	6.0	1.3	12/17/71	1310	MEC
0116	0347	67	MISC	OPEL	067	1	4	4	0	2000	8.3	68566	12	0	0	1	0	74	68	30.13	1060	N	47.5	7.0	1.2	03/30/72	1000	RWK

CAR#	RUN#	YR	MAKE	MODEL	CID	BBL	TRN	CYL	A/C	INRT	RUNP	ODOMR	FT	EVP	EXH	EPC	VTP	DB	WB	BAROM	IRPM	D/N	DWEL	IGNT	ICT	DATE	TIME	PIC
0163	0173	71	BUIC	SKYLA	350	2	0	8	0	3500	11.2	10215	20	1	1	1	0	70	49	24.68	580	D	30.0	00.0	5.8	02/08/72	1440	WB
0019	0019	70	BUIC	GS350	350	4	0	8	1	4000	13.2	20644	20	0	1	1	0	74	47	24.69	625	D	31.0	3.0	9.0	12/22/71	0735	DRL
0081	0081	68	BUIC	LESAB	350	2	0	8	1	4500	14.0	43111	25	0	1	1	0	72	49	24.76	520	D	37.0	0.0	2.5	01/15/72	1320	DRL
0040	0040	67	BUIC	LESAB	340	4	0	8	1	4000	13.2	37489	21	0	0	1	0	71	48	24.68	420	D	30.0	2.0	2.1	12/30/71	1535	DRL
0039	0039	66	BUIC	WAGON	401	4	0	8	1	4000	13.2	76002	25	0	0	1	0	69	50	24.66	510	D	29.0	3.0	7.6	12/30/71	1205	DRL
0168	0179	65	BUIC	RIVIE	425	4	0	8	1	4500	14.0	63069	20	0	0	1	0	70	51	24.76	410	D	23.0	4.0	7.7	02/10/72	1245	WB
0083	0083	64	BUIC	SKYLA	300	2	0	8	0	3500	11.2	92847	20	0	0	1	0	70	50	24.43	450	D	31.0	14.0	9.4	01/17/72	1055	DRL
0068	0068	63	BUIC	SKYLA	215	4	0	8	0	3500	11.2	95306	16	0	0	1	0	70	49	24.16	600	D	33.0	5.0	6.5	01/12/72	1005	DRL
0135	0137	61	BUIC	LESAB	364	2	0	8	1	4000	14.0	62331	20	0	0	1	0	69	46	24.60	500	D	25.0	7.0	8.7	01/29/72	1955	WB
0051	0051	71	CADI	DEVIL	472	4	0	8	1	5500	15.3	6042	26	1	3	1	0	74	50	24.69	640	D	30.0	5.0	2.9	01/06/72	1740	DRL
0048	0048	70	CADI	DEVIL	472	4	0	8	1	5500	15.3	28407	26	0	1	1	0	68	47	24.59	620	D	28.0	6.0	1.3	01/05/72	1820	DRL
0085	0085	68	CADI	DEVIL	472	4	0	8	1	5300	14.7	39627	26	0	3	1	0	71	52	24.38	610	D	28.0	5.0	0.1	01/17/72	1520	DRL
0042	0042	66	CADI	DEVIL	429	4	0	8	1	5000	14.7	52637	26	0	0	1	0	76	49	24.61	710	N	30.0	4.0	4.0	12/31/71	0810	DRL
0158	0166	58	CADI	FLEET	365	4	0	8	1	5000	14.7	39361	20	0	0	0	0	72	49	24.46	600	D	34.0	5.0	1.7	02/07/72	1825	SS
0158	0167R	58	CADI	FLEET	365	4	0	8	1	5000	14.7	39407	20	0	0	0	0	72	52	24.67	600	D	34.0	5.0	1.5	02/07/72	0800	WB
0061	0061	71	CHEV	KINGS	400	2	0	8	1	5000	14.7	3755	24	1	1	1	0	74	50	24.32	600	D	30.0	10.0	5.4	01/10/72	1500	DRL
0114	0114	71	CHEV	IMPAL	350	4	0	8	1	4000	13.2	9340	24	1	1	1	0	69	50	24.56	580	D	30.0	12.0	4.6	01/25/72	0755	DRL
0140	0142	71	CHEV	IMPAL	350	2	0	8	0	4000	12.0	8078	24	1	1	1	0	71	49	24.26	570	D	30.0	0.0	7.5	01/31/72	1650	DRL
0145	0148	71	CHEV	MICAR	350	4	0	8	1	4000	13.2	12584	23	1	1	1	0	71	49	24.65	540	D	29.0	-2.0	7.9	02/02/72	0820	WB
0155	0162	71	CHEV	IMPAL	350	2	0	8	1	4000	13.2	5812	25	1	1	1	0	72	49	24.42	625	D	32.0	8.0	1.5	02/05/72	0740	WB
0005	0005	70	CHEV	CAMAR	350	2	0	8	0	3500	11.2	7090	8	0				72	47	24.95	475	D	31.0	4.0	4.4	12/17/71	1041	DRL
0017	0017	70	CHEV	IMPAL	350	2	0	8	0	3500	11.2	20391	24	0	1	1	0	72	47	24.73	490	D	29.0	4.0	6.2	12/21/71	1230	DRL
0100	0100	70	CHEV	CHEVE	396	4	0	8	1	3500	12.3	26454	20	0	1	1	0	70	49	24.36	560	D	30.0	5.0	8.7	01/21/72	1155	DRL
0130	0132	70	CHEV	IMPAL	400	2	0	8	1	4000	13.2	24577	24	0	1	1	0	70	45	24.55	520	D	27.0	9.0	8.1	01/29/72	1930	DRL
0010	0010	69	CHEV	CAMAR	350	2	3	8	0	3000	10.3	22944	18	0	1	1	0	76	50	24.61	725	N	31.0	4.0	7.0	12/18/71	1303	DRL
0012	0012	69	CHEV	CHEVE	307	2	0	8	0	3000	10.3	32900	20	0	1	1	0	71	47	24.48	500	D	31.0	10.0	4.2	12/20/71	1055	DRL
0027	0027	69	CHEV	KINGS	350	4	0	8	1	4500	14.0	33934	24	0	3	1	0	72	48	24.71	580	D	28.0	8.0	7.3	12/24/71	0855	DRL
0138	0140	69	CHEV	CONCO	307	2	0	8	0	4000	12.0	33780	20	0	1	1	0	70	47	24.50	530	D	28.0	6.0	6.7	01/31/72	1155	WB
0138	0146R	69	CHEV	CONCO	307	2	0	8	0	4000	12.0	33786	20	0	1	1	0	71	50	24.40	500	D	23.0	4.0	6.2	02/01/72	1530	WB
0021	0021	68	CHEV	IMPAL	307	2	0	8	0	4000	12.0	40322	24	0	1	1	0	76	49	24.64	420	D	36.0	5.0	9.9	12/22/71	1535	DRL
0031	0031	68	CHEV	IMPAL	327	4	0	8	0	4000	12.0	56609	24	0	1	1	0	72	49	24.60	480	D	24.0	14.0	1.7	12/28/71	1300	SS
0032	0032	68	CHEV	CORVE	327	4	4	8	0	3500	11.2	25318	20	0	3	1	0	73	49	24.57	480	N	28.0	4.0	4.9	12/28/71	1520	DRL
0053	0053	68	CHEV	CONCO	327	4	0	8	1	3500	12.3	28478	20	0	1	1	0	69	48	24.72	515	D	30.0	2.5	7.7	01/07/72	1100	DRL
0023	0023	67	CHEV	CAMAR	327	2	0	8	1	3500	12.3	78587	18	0	0	1	0	76	52	24.69	475	D	41.0	6.0	4.9	12/22/71	0810	DRL
0025	0025	67	CHEV	CAPRI	396	4	0	8	1	4000	13.2	29881	24	0	0	1	0	78	53	24.68	440	D	40.0	9.0	2.1	12/23/71	1340	DRL
0089	0089	67	CHEV	BELAI	283	2	0	8	0	4000	12.0	40190	24	0	0	1	0	70	49	24.44	460	D	31.0	3.0	8.0	01/18/72	1315	DRL
0112	0112	67	CHEV	CAPRI	327	4	0	8	1	4000	13.2	59156	20	0	0	1	0	70	52	24.51	560	D	30.0	0.0	10.0	01/24/72	1315	DRL
0063	0063	66	CHEV	CHEVE	230	2	0	6	0	3000	10.3	29329	16	0	0	1	0	71	49	24.37	560	D	35.0	3.0	3.8	01/11/72	1010	SS
0102	0102	66	CHEV	CORVA	164	4	0	6	0	3000	10.3	49572	14	0	0	0	0	72	51	24.31	520	D	36.0	2.0	4.6	01/21/72	1610	DRL
0131	0133	66	CHEV	IMPAL	283	2	0	8	1	4000	13.2	48298	20	0	0	1	0	69	48	24.60	500	D	25.0	8.0	10.0	01/29/72	0835	DRL
0002	0002	65	CHEV	IMPAL	327	4	0	8	0	4000	12.0	65993	20	0	0	1	0	71	45	24.75	450	D	28.0	18.0	.7	12/16/71	1247	WJB
0004	0004	65	CHEV	WAGON	293	2	0	8	0	3500	11.2	72114	20	0	0	1	0	76	48	24.80	450	D	25.0	6.0	3.0	12/17/71	0810	DRL
0038	0038	65	CHEV	CHEVE	283	2	0	8	0	3500	11.2	58102	18	0	0	1	0	71	48	24.54	560	D	28.0	4.0	4.0	12/30/71	0950	DRL
0129	0131	65	CHEV	CORVE	327	4	4	8	0	3500	11.2	78129	20	0	0	1	0	69	50	24.58	800	N	29.0	3.0	3.9	01/28/72	1655	DRL
0058	0058	64	CHEV	IMPAL	327	4	0	8	0	3500	11.2	80768	20	0	0	1	0	70	48	24.34	460	D	28.0	3.0	8.5	01/08/72	1305	SS
0075	0075	64	CHEV	BELAI	283	2	0	8	1	4000	12.0	73016	20	0	0	1	0	70	49	24.57	460	D	31.0	3.0	2.2	01/13/72	1755	DRL
0113	0113	64	CHEV	IMPAL	230	1	0	6	0	3500	11.2	95793	20	0	0	1	0	70	49	24.58	440	D	32.0	2.0	0.6	01/24/72	1525	DRL
0118	0118	64	CHEV	MALIB	283	2	0	8	0	3500	11.2	61640	20	0	0	1	0	70	49	24.55	600	D	20.0	8.0	1.7	01/25/72	1835	DRL
0062	0062	63	CHEV	IMPAL	327	4	0	8	0	3500	11.2	94608	20	0	0	1	0	70	48	24.44	450	D	29.0	8.0	3.2	01/11/72	0805	SS
0092	0092	63	CHEV	CORVA	145	2	4	4	0	2500	9.4	75971	14	0	0	0	0	72	50	24.51	940	N	20.0	35.0	1.3	01/19/72	1455	DRL

CAR#	RUN#	YR	MAKE	MODEL	CID	BBL	TRN	CYL	A/C	INRT	RDHP	ODOMR	EFI	EVP	EXH	EPV	VTP	DB	WB	BAROM	IRPM	D/N	DWEL	IGNT	ICO	DATE	TIME	PIC
0101	0101	63	CHEV	IMPAL	283	2	0	8	0	3500	11.2	81422	20	0	0	1	0	72	50	24.30	480	D	28.0	0.0	4.8	01/21/72	1405	DRL
0107	0107	63	CHEV	LOTKU	283	4	0	8	0	4000	12.0	68755	20	0	0	0	0	70	49	24.25	600	D	29.0	3.0	8.0	01/22/72	1325	DRL
0022	0022	62	CHEV	BISCA	283	2	3	8	0	4000	12.0	42636	20	0	0	0	0	72	48	24.68	450	N	30.0	2.0	.2	12/22/71	1820	DRL
0109	0109	62	CHEV	BISCA	230	1	0	6	0	3500	11.2	97485	20	0	0	0	0	70	50	24.35	610	D	30.0	0.0	2.9	01/22/71	1815	DRL
0106	0106	61	CHEV	CORVA	145	2	0	6	0	2500	9.4	34103	14	0	0	0	0	72	52	24.32	480	D	32.0	0.0	0.7	01/22/72	0945	DRL
0157	0164	60	CHEV	BELAI	283	2	3	8	0	4000	12.0	97105	20	0	0	0	0	69	50	24.39	525	N	45.0	0.0	4.0	02/05/72	1340	WB
0125	0126	59	CHEV	IMPAL	348	4	0	8	0	4000	12.0	56680	18	0	0	0	0	69	46	24.59	580	D	23.0	6.0	9.7	01/27/72	1640	DRL
0084	0084	58	CHEV	APACH	283	4	3	8	0	3500	11.2	58942	20	0	0	0	0	72	51	24.37	700	N	29.0	7.0	8.9	01/17/72	1310	DRL
0171	0184	58	CHEV	IMPAL	283	4	0	8	0	4000	12.0	15002	20	0	0	0	0	70	52	24.69	460	D	28.0	2.0	4.3	02/11/72	1245	WB
0123	0124	57	CHEV	BISCA	265	2	0	8	0	3500	11.2	31992	20	0	0	0	0	71	50	24.48	640	D	25.0	5.0	10.0	01/27/72	1615	DRL
0141	0143	71	CHRY	300	440	4	0	8	1	4500	14.0	15007	24	1	1	1	0	77	52	24.30	600	D	29.0	0.0	7.0	02/01/72	0740	WB
0166	0176	68	CHRY	300	440	4	0	8	1	4500	14.0	78577	24	0	1	1	0	69	53	24.55	480	D	38.0	6.0	7.5	02/09/72	1530	WB
0166	0178R	68	CHRY	300	440	4	0	8	1	4500	14.0	78614	24	0	1	1	0	70	50	24.30	500	D	28.0	6.0	7.1	02/10/72	0905	WB
0055	0055	66	CHRY	NEWPO	383	2	0	8	1	4000	13.2	16384	25	0	0	1	0	70	48	24.56	725	N	25.0	8.0	6.4	01/07/71	1340	DRL
0069	0069	65	CHRY	WAGON	383	2	0	8	0	4500	12.7	66696	25	0	0	1	0	70	49	24.16	575	D	32.0	18.0	9.9	01/12/72	1235	DRL
0167	0177	71	DODG	POLAR	383	4	0	8	1	4000	14.0	13951	23	1	1	1	0	71	52	24.79	420	D	34.0	2.0	10.7	02/10/72	0655	WB
0167	0182R	71	DODG	POLAR	383	4	0	8	1	4500	14.0	13989	23	1	1	1	0	71	50	24.70	420	D	34.0	2.0	10.7	02/11/72	0650	WB
0008	0008	70	DODG	DART	225	1	0	6	0	3000	10.3	20361	18	0	1	1	0	71	48	24.68	475	D	44.0	0.0	9.9	12/18/71	0812	DRL
0014	0014	69	DODG	DART	273	2	0	8	1	3500	12.3	41015	18	0	1	1	0	70	48	24.46	600	D	33.0	5.0	4.2	12/20/71	1700	DRL
0066	0066	68	DODG	CHARG	318	2	0	8	1	3500	12.3	48104	19	0	1	1	0	73	48	24.18	580	D	25.0	2.0	8.5	01/11/72	1740	DRL
0059	0059	66	DODG	MONAC	383	2	0	8	0	4000	12.0	81801	25	0	0	1	0	72	48	24.39	550	D	24.0	9.0	7.7	01/10/72	0830	SS
0088	0088	65	DODG	D-100	318	2	3	8	0	4000	12.0	75304	20	0	0	1	0	71	50	24.49	910	N	31.0	6.0	6.5	01/13/72	1055	DRL
0160	0169	64	DODG	DART	225	1	0	6	0	3000	10.3	65150	19	0	0	1	0	72	50	24.64	510	D	39.0	8.0	11.9	02/07/72	1355	DRL
0160	0172R	64	DODG	DART	225	1	0	6	0	3000	10.3	75812	19	0	0	1	0	70	48	24.70	530	D	39.0	3.0	10.7	02/08/72	1225	WB
0086	0086	71	FORD	WAGON	429	2	0	8	1	4500	14.0	22609	24	1	1	1	0	70	49	24.35	610	D	31.0	2.0	4.0	01/17/72	1800	DRL
0095	0095	71	FORD	GALAX	400	2	0	8	1	4000	12.0	19743	25	1	1	1	0	72	51	24.68	590	D	27.0	6.0	9.0	01/20/72	0835	DRL
0152	0158	71	FORD	LTDSW	390	2	0	8	1	4500	14.0	15373	25	1	1	1	0	72	53	24.80	510	D	27.0	6.0	5.8	02/04/72	0715	WB
0172	0185	71	FORD	TORIN	351	2	0	8	1	3500	12.3	4310	24	1	1	1	0	70	52	24.69	550	D	34.0	0.0	4.6	02/11/72	1500	DPL
0007	0007	70	FORD	MAVER	200	1	0	6	0	3000	10.3	16104	18	0	1	1	0	69	46	24.86	550	D	50.0	0.0	7.8	12/17/71	1550	DRL
0064	0064	70	FORD	LTD	390	2	0	8	1	4000	13.2	27364	25	0	1	1	0	71	48	24.27	480	D	29.0	2.0	8.6	01/11/72	1205	SS
0071	0071	70	FORD	F-100	360	2	4	8	0	4000	12.0	30635	25	0	1	1	0	70	52	24.38	520	N	28.0	4.0	4.1	01/12/72	1740	DRL
0122	0122	70	FORD	LTD	390	2	0	8	1	4500	14.0	43879	25	0	1	1	0	70	49	24.72	575	D	12.0	0.0	8.6	01/26/72	1800	DRL
0122	0123R	70	FORD	LTD	390	2	0	8	1	4500	14.0	43904	25	0	1	1	0	70	49	24.72	580	D	12.0	0.0	9.0	01/26/72	0930	DRL
0013	0013	69	FORD	FAIRL	302	2	0	8	0	3500	11.2	27685	20	0	1	1	0	74	47	24.45	430	D	31.0	4.0	5.2	12/20/71	1425	DRL
0126	0128	69	FORD	MUSTA	351	4	4	8	0	3500	11.2	42488	20	0	1	1	0	73	48	24.66	600	N	25.0	6.0	0.5	01/27/72	1915	DRL
0136	0138	69	FORD	F-100	360	2	0	8	0	4000	12.0	47728	24	0	1	1	0	69	47	24.53	480	D	33.0	12.0	5.2	01/31/72	0745	WB
0006	000a	68	FORD	WAGON	428	4	0	8	1	4500	14.0	35503	25	0	1	1	0	70	47	24.82	525	D	27.0	5.0	9.9	12/17/71	1332	DRL
0047	0047	68	FORD	GALAX	390	2	0	8	1	4000	13.2	63215	25	0	1	1	0	72	48	24.59	550	D	27.0	6.0	.3	01/05/72	1520	DRL
0060	0060	6a	FORD	MUSTA	302	4	0	8	0	3000	10.3	40123	16	0	1	1	0	70	52	24.39	580	D	31.0	0.0	9.9	01/10/72	1120	SS
0057	0057	67	FORD	XL	428	4	0	8	0	4000	12.0	70623	25	0	0	1	0	71	50	24.32	525	D	32.0	10.0	6.9	01/08/72	1055	SS
0074	0074	67	FORD	F-100	352	2	4	8	0	4000	12.0	41169	20	0	0	1	0	72	50	24.49	620	N	31.0	3.0	9.7	01/13/72	1525	DRL
0032	0032	67	FORD	FAIRL	289	2	3	8	1	3500	12.3	63508	20	0	0	1	0	72	49	24.48	480	N	32.0	4.0	10.0	01/17/72	0815	DRL
0033	0033	66	FORD	MUSTA	289	2	0	8	0	3000	10.3	58283	16	0	0	1	0	71	48	24.39	550	D	41.0	6.0	6.4	12/29/71	0715	DRL
0034	0034	66	FORD	MUSTA	289	4	4	8	0	3000	10.3	30456	19	0	0	1	0	71	48	24.49	425	N	26.0	3.0	1.9	12/29/71	1010	DRL
0035	0035	66	FORD	THUND	390	4	0	8	1	4500	14.0	77373	22	0	0	1	0	70	53	24.35	440	D	36.0	0.0	5.2	12/29/71	1340	DRL
0090	0090	66	FORD	LTD	289	2	0	8	1	4000	13.2	83761	25	0	0	1	0	72	49	24.61	550	D	28.0	4.0	6.0	01/19/72	0815	DRL
0070	0070	65	FORD	FALCO	289	2	3	8	0	3500	11.2	91836	16	0	0	1	0	70	50	24.35	660	N	28.0	12.0	10.0	01/12/72	1520	DPL
0134	0136	65	FORD	FAIRL	289	2	3	8	0	3500	11.2	99430	16	0	0	1	0	70	47	24.54	600	N	27.0	5.0	9.2	01/29/72	1645	WB
0143	0145	65	FORD	FALCO	200	1	0	6	0	2750	9.9	43390	14	0	0	1	0	70	47	24.34	600	D	36.0	4.0	8.8	02/01/72	1330	WB
0143	0152R	65	FORD	FALCO	200	1	0	6	0	2750	9.9	43426	14	0	0	1	0	69	49	24.65	540	D	40.0	2.0	7.4	02/02/72	1800	SS

CAR#	RUN#	YR	MAKE	MODEL	CID	BL	TR	CL	AC	INRT	RDHP	ODOMR	FT	EVP	EH	EVC	VTP	DD	WB	BAROM	IRPM	D/N	DWEL	IGNT	ICO	DATE	TIME	PIC
0065	0065	64	FORD	FALCO	223	1	0	6	0	3000	10.3	68496	14	0	0	1	0	72	48	24.21	700	D	43.0	18.0	9.3	01/11/71	1740	SS
0099	0099	64	FORD	GALAX	390	4	0	8	1	4000	13.2	78321	20	0	0	1	0	70	48	24.57	520	D	32.0	2.0	8.3	01/20/72	2035	DRL
0154	0161	64	FORD	FAIRL	289	2	0	8	0	3500	11.2	77164	16	0	0	1	0	70	51	24.65	520	D	24.0	00.0	4.8	02/04/72	1650	DRL
0154	0165R	64	FORD	FAIRL	289	2	0	8	0	3500	11.2	77186	16	0	0	1	0	69	49	24.37	530	D	24.0	00.0	6.8	02/05/72	1600	WB
0045	0045	63	FORD	COUNT	390	2	0	8	0	4500	12.7	79698	20	0	0	1	0	71	51	24.61	480	D	27.0	5.0	.8	01/05/72	0815	DRL
0094	0094	63	FORD	FALCO	260	2	0	8	0	3000	10.3	63832	14	0	0	1	0	70	48	24.55	600	D	25.0	10.0	5.5	01/19/72	1855	DRL
0150	0156	62	FORD	GALAX	390	4	0	8	1	4000	13.2	84388	20	0	0	0	0	70	47	24.63	500	D	38.0	2.0	7.3	02/03/72	1430	WB
0159	0168	62	FORD	GALAX	390	4	0	8	1	4000	13.2	90801	20	0	0	0	0	72	51	24.67	510	D	28.0	8.0	4.7	02/07/72	1035	SS
0149	0155	61	FORD	FALCO	170	1	3	6	0	3000	10.3	63307	14	0	0	0	0	71	47	24.62	1000	N	50.0	-4.0	1.7	02/03/72	1405	WB
0087	0087	[illegible]	FORD	THUND	352	4	0	8	1	4000	13.2	58999	20	0	0	0	0	72	51	24.49	620	D	30.0	0.0	5.9	01/18/72	0830	DRL
0165	0175	59	FORD	GALAX	352	4	0	8	0	4000	12.0	81598	20	0	0	0	0	72	50	24.54	330	D	34.0	2.0	2.0	02/09/72	0845	WB
0104	0104	58	FORD	THUND	352	4	0	8	1	4000	13.2	75734	20	0	0	0	0	70	48	24.35	400	D	26.0	-3.0	0.5	01/21/72	2030	DRL
0093	0093	57	FORD	WAGON	292	4	0	8	0	3500	11.2	86487	20	0	0	0	0	76	51	24.55	540	D	30.0	3.0	9.3	01/19/72	1650	DRL
0078	0078	71	MERC	MONTE	351	2	0	8	1	4000	13.2	10520	20	1	1	1	0	70	49	24.80	860	D	31.0	3.0	2.5	01/14/72	1730	DRL
0091	0091	69	MERC	COUGA	351	4	0	8	1	3500	12.3	16311	17	0	1	1	0	70	50	24.56	580	D	29.0	3.0	8.6	01/19/72	1025	DRL
0026	0026	68	MERC	COUGA	302	2	3	8	0	3500	11.2	77858	16	0	1	1	0	74	54	24.70	535	N	34.0	3.0	2.6	12/23/71	1640	DRL
0041	0041	67	MERC	COUGA	289	2	0	8	0	3500	11.2	73678	22	0	0	1	0	72	48	24.69	600	D	31.0	16.0	5.3	12/30/71	1805	DRL
0128	0181	65	MERC	MONTE	330	4	0	8	1	4000	13.2	91754	21	0	0	1	0	70	51	24.75	540	D	31.0	4.0	10.0	02/10/72	1845	SS
0098	0098	64	MERC	WAGON	390	4	0	8	1	4500	14.0	95056	20	0	0	1	0	72	48	24.60	600	D	24.0	20.0	8.6	01/20/72	1830	DRL
0169	0180	62	MERC	COLNY	390	4	0	8	0	4500	12.7	85645	21	0	0	0	0	70	57	24.74	510	D	30.0	-2.0	8.5	02/10/72	1450	WB
0016	0016	71	OLDS	F-85	350	2	0	8	1	4000	13.2	2310	20	1	1	1	0	69	46	24.78	650	D	33.0	10.0	1.5	12/21/71	1005	DRL
0009	0009	70	OLDS	EIGHT	455	4	0	8	1	4500	14.0	31090	25	0	1	1	0	72	47	24.69	545	D	36.0	4.0	7.6	12/18/71	1036	DRL
0137	0139	69	OLDS	CUTLA	350	2	0	8	0	3500	11.2	22941	20	0	1	1	0	72	46	24.51	640	D	30.0	0.0	1.5	01/31/71	0955	WB
0096	0096	68	OLDS	F-85	350	2	0	8	0	3500	11.2	18373	20	0	1	1	0	72	51	24.59	580	D	35.0	0.0	5.1	01/20/72	1355	DRL
0029	0029	67	OLDS	CUTLA	330	4	0	8	1	4000	13.2	44032	20	0	0	1	0	76	49	24.63	440	D	27.0	22.0	5.5	12/28/71	0915	DRL
0054	0054	66	OLDS	EIGHT	330	2	0	8	1	4000	13.2	50735	25	0	0	1	0	71	49	24.57	500	D	31.0	4.0	7.6	01/07/72	1320	DRL
0108	0108	65	OLDS	F-85	330	2	0	8	1	3500	12.3	72420	20	0	0	1	0	71	50	24.37	610	D	31.0	5.0	3.7	01/22/72	1530	DRL
0170	0183	64	OLDS	STARF	394	4	0	8	1	4500	14.0	66558	21	0	0	1	0	70	51	24.71	450	D	32.0	6.0	8.8	02/11/72	0850	WB
0077	0077	63	OLDS	NINET	394	4	0	8	1	4500	14.0	95087	21	0	0	1	0	69	49	24.84	520	D	31.0	18.0	9.4	01/14/72	1245	DRL
0161	0170	71	PLYM	DUSTE	225	1	0	6	0	3000	10.3	13913	24	1	1	1	0	69	48	24.70	480	D	51.0	7.0	3.9	02/08/72	0630	WB
0116	0116	70	PLYM	DUSTE	318	2	3	8	0	3500	11.2	34955	18	0	1	1	0	71	51	24.49	840	N	30.0	3.0	1.5	01/25/72	1345	DRL
0015	0015	69	PLYM	SATEL	318	2	0	8	0	3500	11.2	95644	19	0	1	1	0	71	47	24.71	420	D	29.0	1.0	2.2	12/21/71	0738	DRL
0153	0160	69	PLYM	ROADR	383	4	4	8	0	3500	11.2	46192	18	0	1	1	0	70	51	24.76	800	N	28.0	6.0	4.1	02/04/72	1325	DRL
0046	0046	68	PLYM	BARRA	318	2	0	8	1	3000	11.3	42143	8	0	1	1	0	74	50	24.67	575	D	29.0	0.0	2.9	01/05/72	1145	DRL
0151	0157	67	PLYM	FURY	383	2	0	8	1	4000	13.2	80813	25	0	0	1	0	69	46	24.72	640	D	25.0	00.0	6.2	02/03/72	1635	DRL
0151	0159R	67	PLYM	FURY	383	2	0	8	1	4000	13.2	80835	25	0	0	1	0	72	51	24.79	648	D	25.0	00.0	7.1	02/04/72	0930	WB
0144	0147	66	PLYM	SATEL	318	2	0	8	1	3500	12.3	93437	19	0	0	1	0	71	50	24.41	510	D	31.0	2.5	9.0	02/01/72	1735	SS
0144	0149R	66	PLYM	SATEL	318	2	0	8	1	3500	12.3	93446	19	0	0	1	0	70	48	24.66	500	D	30.0	-4.0	8.7	02/02/72	1020	WB
0056	0056	65	PLYM	FURY	318	2	0	8	0	4000	12.0	57911	25	0	0	1	0	74	50	24.69	540	D	29.0	4.0	9.9	01/08/72	0845	DRL
0115	0115	64	PLYM	VALIA	170	1	3	6	0	3000	10.3	62411	18	0	0	1	0	70	50	24.58	780	N	45.0	0.0	0.3	01/25/72	0950	DRL
0139	0141	63	PLYM	FURY	383	6	4	8	0	4000	12.0	63000	20	0	0	0	0	70	47	24.45	760	N	32.0	0.0	6.8	01/31/72	1400	WB
0173	0186	57	PLYM	BELVE	318	4	0	8	0	3500	11.2	97195	20	0	0	0	0	69	50	24.68	450	D	22.0	2.0	5.0	02/11/72	1705	SS
0132	0134	71	PONT	GRAND	455	4	0	8	1	4000	13.2	12731	21	1	1	1	0	70	47	24.56	575	D	45.0	5.0	9.0	01/29/72	1230	DRL
0011	0011	70	PONT	LEMAN	350	2	0	8	1	3500	12.3	31114	22	0	1	1	0	70	46	24.50	525	D	8.0	23.0	3.4	12/14/71	1417	DRL
0162	0171	70	PONT	BONNE	455	4	0	8	1	4500	14.0	27279	27	0	1	1	0	70	48	24.73	600	D	42.0	8.0	2.9	02/08/72	0840	WB
0003	0003	69	PONT	GTO	400	4	4	8	0	4000	12.0	41819	22	0	1	1	0	72	46	24.77	600	N	29.0	9.0	2.6	12/16/71	1344	WJB
0018	0018	69	PONT	EXECU	400	4	0	8	1	5000	14.7	38429	26	0	1	1	0	72	47	24.69	420	D	35.0	2.0	1.9	12/21/71	1450	DRL
0028	0028	68	PONT	LEMAN	350	2	0	8	0	4000	12.0	37661	22	0	1	1	0	71	49	24.73	530	D	33.0	18.0	8.1	12/24/71	1110	DRL
0037	0037	67	PONT	GTO	326	2	0	8	1	4000	13.2	41619	22	0	0	1	0	68	48	24.49	540	D	34.5	2.0	4.8	12/30/71	0730	DRL
0124	0125	67	PONT	LEMAN	326	2	0	8	0	3500	11.2	67810	21	0	0	1	0	71	50	24.52	520	D	27.0	2.0	10.0	01/27/72	1135	DRL

CAR#	RUN#	YR	MAKE	MODEL	CID	B/L	BTR/N	TCY/L	A/C	INRT	RDHP	ODOMR	FT	EVP	EXH	EPCV	VTP	DB	WB	BAROM	IRPM	D/N	DWEL	IGNT	ICO	DATE	TIME	PIC
0067	0067	66	PONT	BONNE	389	2	0	8	1	4500	14.0	72928	26	0	0	1	0	72	50	24.09	500	D	25.0	3.0	3.7	01/12/72	0800	DRL
0156	0163	66	PONT	LEMAN	326	2	0	9	0	3500	11.2	49020	21	0	0	1	0	69	50	24.44	460	D	18.0	4.0	6.6	02/05/72	0945	WB
0120	0120	65	PONT	GTO	326	4	3	8	0	3500	11.2	82302	21	0	0	1	0	72	50	24.67	780	N	25.0	-8.0	4.7	01/26/72	1330	DRL
0072	0072	64	PONT	TEMPE	326	4	0	8	0	3500	11.2	41981	21	0	0	1	0	69	48	24.45	520	D	29.0	6.0	5.9	01/13/72	0855	DRL
0079	0079	62	PONT	BONNE	389	4	0	8	1	4000	12.0	46934	25	0	0	0	0	68	47	24.80	540	D	33.0	7.0	6.2	01/15/72	0820	DRL
0001	0001	61	PONT	CATAL	389	4	0	8	0	4000	12.0	17771	25	0	0	0	0	69	44	24.36	700	D	28.0	10.0	9.9	12/15/71	1440	DRL
0105	0105	71	RAMB	HORNE	223	1	3	6	0	3000	10.3	14366	16	1	1	1	0	72	51	24.32	880	N	34.0	2.0	8.7	01/22/72	1755	DRL
0148	0154	69	RAMB	440	139	1	0	6	0	3000	10.3	33806	16	0	1	1	0	70	47	24.66	490	D	47.0	00.0	6.1	02/03/72	0955	WB
0133	0135	67	RAMB	REBEL	290	2	0	8	1	3500	12.3	37643	21	0	1	1	0	69	46	24.61	580	D	28.0	0.0	9.8	01/29/72	1320	DRL
0121	0121	65	RAMB	AMERI	232	1	0	6	0	3000	10.3	75190	16	0	0	1	0	70	49	24.65	420	D	26.0	4.0	10.0	01/26/72	1530	DRL
0052	0052	63	RAMB	AMERI	196	1	3	6	0	3000	10.3	55902	00	0	0	0	0	70	50	24.71	680	N	22.0	8.0	9.9	01/07/71	0830	DRL
0044	0044	62	RAMB	CLASS	196	2	0	6	0	3000	10.3	13113	20	0	0	0	0	71	48	24.57	660	D	23.0	0.0	6.8	01/04/72	1510	DRL
0146	0150	59	RAMB	SUPER	196	1	3	6	0	3000	10.3	72722	20	0	0	0	0	70	46	24.65	640	N	34.0	4.0	4.5	02/02/71	1345	DRL
0110	0110	71	VOLK	BEETL	097	1	4	4	0	2000	8.3	73970	12	1	1	0	0	70	47	24.49	860	N	38.0	-3.0	5.8	01/24/72	0705	DRL
0147	0151	70	VOLK	BEETL	097	1	4	4	0	2000	8.3	37859	12	0	1	1	0	71	46	24.66	1000	N	59.0	00.0	5.2	02/02/72	1600	WB
0147	0153R	70	VOLK	BEETL	097	1	4	4	0	2000	8.3	37874	12	0	1	1	0	70	48	24.63	980	N	58.0	00.0	4.4	02/03/72	0740	WB
0020	0020	69	VOLK	SQBK	091	F	4	4	0	2500	9.4	60117	10	0	1	1	0	80	47	24.71	620	N	57.0	4.0	1.9	12/22/71	1050	DRL
0111	0111	68	VOLK	KARMA	091	1	4	4	0	2000	8.3	29210	11	0	1	1	0	70	50	24.43	900	N	43.0	-3.0	7.1	01/24/72	0920	DRL
0117	0117	68	VOLK	BEETL	091	1	4	4	0	2000	8.3	33676	10	0	1	1	0	74	50	24.51	780	N	30.0	2.0	10.0	01/25/72	1610	DRL
0142	0144	67	VOLK	BEETL	091	1	4	4	0	2000	8.3	97825	10	0	0	1	0	70	46	24.33	780	N	46.0	2.5	7.2	02/01/72	0955	WB
0036	0036	66	VOLK	BEETL	078	1	4	4	0	2000	8.3	44126	10	0	0	0	0	70	48	24.49	800	N	47.0	8.5	4.9	12/29/71	1800	DRL
0097	0097	65	VOLK	BEETL	073	2	4	4	0	2000	8.3	54520	11	0	0	0	0	72	51	24.59	950	N	50.0	3.0	8.6	01/20/72	1605	DRL
0080	0080	63	VOLK	BEETL	073	1	4	4	0	2000	8.3	73676	11	0	0	0	0	71	50	24.83	900	N	48.0	3.0	5.5	01/15/72	1045	DRL
0050	0050	62	VOLK	KARMA	073	1	4	4	0	2000	8.3	74697	10	0	0	0	0	74	50	24.62	980	N	42.0	3.0	7.4	01/06/72	1000	DRL
0103	0103	59	VOLK	BEETL	073	1	4	4	0	2000	8.3	83272	10	0	0	0	0	70	48	24.37	960	N	55.0	5.0	8.6	01/21/72	1820	DRL
0073	0073	57	VOLK	BEETL	073	1	4	4	0	2000	8.3	13285	10	0	0	0	0	73	51	24.45	850	N	52.0	1.0	9.4	01/13/72	1235	DRL
0076	0076	71	MISC	TOYOT	113	2	4	4	0	2500	9.4	28540	15	1	3	1	0	71	49	24.86	680	N	38.0	2.0	9.4	01/13/71	1015	DRL
0127	0129	70	MISC	TOYOT	236	2	3	6	0	3500	11.2	13651	10	0	1	1	0	69	48	24.53	340	N	35.0	2.0	10.0	01/28/72	1120	DRL
0024	0024	69	MISC	TOYOT	116	2	4	4	0	2500	9.4	23770	10	0	3	1	0	71	49	24.67	680	N	55.0	10.0	0.6	12/23/71	1104	DRL
0119	0119	68	MISC	DATSU	079	2	0	4	1	2000	8.3	19709	11	0	3	1	0	69	51	24.68	800	D	30.0	-1.0	5.8	01/26/72	1055	DRL

CAR#	RUN#	YR	MAKE	MODEL	CID	BHL	TRN	CYL	A/C	INRT	RDHP	ODOMR	FT	EVP	EXH	PCV	VTP	DB	WB	BAROM	IRPM	D/N	DWEL	IGNT	ICO	DATE	TIME	PIC
0064	0064	71	BUIC	LESAB	350	4	0	8	1	4500	14.0	5400	22	1	1	1	0	74	53	29.22	610	D	29.0	4.0	6.5	02/16/72	1100	RQM
0049	0049	70	BUIC	ESTAT	455	4	0	8	1	5000	14.7	25476	24	0	1	1	0	73	51	29.57	620	D	26.0	6.0	0.5	02/11/72	1230	RQM
0067	0067	69	BUIC	ELECT	430	4	0	8	1	4500	14.0	40298	25	0	1	1	0	72	56	28.85	410	D	29.0	1.0	6.4	02/17/72	0900	RQM
0132	0147	69	BUIC	LESAB	350	4	0	8	1	4500	14.0	30309	20	0	1	1	0	73	54	29.00	670	D	27.5	-9.0	4.6	03/15/72	1400	RQM
0115	0122	68	BUIC	ELECT	430	4	0	8	1	4500	14.0	44690	20	0	1	1	0	73	54	28.90	690	D	26.0	2.0	2.0	03/07/72	1100	RQM
0150	0163	68	BUIC	GS350	350	4	0	8	0	4000	12.0	33572	20	0	1	1	0	75	58	29.45	510	D	31.5	0.0	6.3	03/24/72	0900	RQM
0071	0071	65	BUIC	SPECI	300	2	0	8	0	3500	11.2	36839	20	0	0	1	0	72	52	28.75	530	D	29.0	-8.0	3.8	02/17/72	1600	RQM
0145	0159	64	BUIC	SKYLA	225	1	0	6	1	3500	12.3	65424	20	0	0	1	0	73	54	29.00	460	D	34.0	-17.0	6.0	03/22/72	1130	RQM
0089	0090	62	BUIC	WILDC	401	1	0	8	0	4500	12.7	36430	20	0	0	0	0	71	53	29.23	625	D	29.0	-6.0	4.8	02/23/72	0900	RQM
0169	0186	58	BUIC	LIMIT	401	4	0	8	0	5000	13.4	77071	20	0	0	0	0	72	52	28.85	520	D	26.0	10.0	1.6	03/29/72	0800	RQM
0022	0021	70	CADI	COUPE	472	4	0	8	1	5000	14.7	32000	26	0	1	1	0	74	53	29.23	550	D	32.0	5.0	3.5	02/04/72	0730	RQM
0012	0012	66	CADI	CALAI	429	4	0	8	1	5000	14.7	53685	26	0	0	1	0	72	52	29.18	600	D	30.0	6.0	3.3	02/02/72	0730	RQM
0138	0149	64	CADI	DEVIL	429	4	0	8	1	5000	14.7	57337	26	0	0	1	0	73	54	28.72	500	D	33.0	00.0	4.0	03/16/72	0900	RQM
0082	0088	59	CADI	COUPE	390	4	0	8	1	5000	14.7	99999	22	0	0	0	0	74	53	29.74	500	D	30.0	5.0	2.4	02/22/72	1800	RQM
0008	0008	71	CHEV	IMPAL	400	2	0	8	1	4000	13.2	19093	24	1	1	1	0	73	52	29.25	600	D	30.0	6.0	0.7	01/31/72	0900	RQM
0093	0095	71	CHEV	CAPRI	454	4	0	8	1	4000	13.2	13016	20	1	1	1	0	73	53	29.20	580	D	29.0	7.0	6.6	02/24/72	1130	RQM
0101	0106	71	CHEV	IMPAL	350	2	0	8	0	4000	12.0	11171	20	1	1	1	0	73	53	29.26	650	D	29.0	5.0	0.1	03/02/72	1030	RQM
0114	0123	71	CHEV	MONTE	350	2	0	8	1	4000	13.2	6245	20	1	1	1	0	73	54	28.95	700	D	30.0	8.0	2.0	03/07/72	1300	RQM
0135	0146	71	CHEV	VEGA	140	1	4	8	0	2500	9.4	10706	15	1	1	1	0	73	54	29.10	550	N	33.0	2.0	10.0	03/15/72	1130	RQM
0085	0087	70	CHEV	KINGS	350	2	0	8	1	5000	14.7	15077	22	0	1	1	0	74	52	29.80	570	D	30.3	4.0	0.9	02/22/72	1600	RQM
0116	0124	70	CHEV	BELAI	350	2	3	8	0	4000	12.0	11277	20	0	1	1	0	73	54	29.50	520	N	30.0	3.0	5.9	03/08/72	0800	RQM
0136	0151	70	CHEV	MALIB	307	2	0	8	0	3500	11.2	25394	20	0	1	1	0	74	58	28.80	520	D	29.0	-7.0	3.3	03/17/72	0930	RQM
0136	0153R	70	CHEV	MALIB	307	2	0	8	0	3500	11.2	25427	20	0	1	1	0	70	53	29.20	520	D	29.0	-7.0	3.3	03/18/72	1200	RQM
0041	0044	69	CHEV	KINGS	350	4	0	8	1	4500	14.0	33700	22	0	1	1	0	74	52	29.74	690	D	29.0	3.0	0.5	02/09/72	1600	RQM
0080	0083	69	CHEV	BISCA	327	2	0	8	0	4000	12.0	39551	24	0	1	1	0	73	52	29.53	500	D	31.0	2.0	3.6	02/20/72	1600	RQM
0119	0129	69	CHEV	IMPAL	327	2	0	8	0	4000	12.0	27815	20	0	1	1	0	74	54	29.55	600	D	30.0	3.0	4.8	03/09/72	1000	RQM
0137	0150	69	CHEV	CAPRI	350	4	0	8	1	4000	13.2	39810	20	0	1	1	0	73	54	28.72	540	D	28.5	5.0	7.2	03/16/72	1100	RQM
0018	0017	68	CHEV	SPORT	307	2	0	8	0	3500	11.2	20300	20	0	1	1	0	72	52	29.21	600	D	35.0	2.0	2.2	02/03/72	0900	RQM
0001	0026	68	CHEV	CHEVE	307	2	0	8	0	3500	11.2	55000	20	0	1	1	0	70	50	29.60	560	D	33.0	0.0	1.2	02/05/72	0830	RQM
0070	0070	68	CHEV	CORVA	164	2	0	6	0	2750	9.9	33920	14	0	3	1	0	73	51	28.75	750	D	25.0	6.0	3.0	02/17/72	1400	RQM
0094	0099	68	CHEV	IMPAL	307	2	0	8	1	4000	13.2	24585	20	0	1	1	0	73	53	29.24	620	D	30.5	4.0	4.8	02/25/72	0900	RQM
0164	0176	68	CHEV	NOVA	230	1	0	6	0	3500	11.2	29416	18	0	1	1	0	74	54	29.10	650	D	33.0	-7.0	.3	03/27/72	0900	RQM
0030	0032	67	CHEV	BELAI	283	2	0	8	0	4000	12.0	50853	24	0	0	1	0	74	53	29.20	575	D	31.0	4.0	5.4	02/06/72	1000	RQM
0083	0086	67	CHEV	CAMAR	327	2	0	8	0	3500	11.2	78509	17	0	0	1	0	74	53	29.85	400	D	16.0	0.5	4.6	02/22/72	1000	RQM
0134	0144	67	CHEV	BELAI	283	2	0	8	0	4000	12.0	58050	20	0	0	1	0	73	56	29.21	390	D	27.5	4.0	6.6	03/14/72	1400	RQM
0134	0145R	67	CHEV	BELAI	283	2	0	8	0	4000	12.0	58074	20	0	0	1	0	73	53	29.15	390	D	27.5	4.0	6.6	03/15/72	0830	RQM
0005	0005	66	CHEV	IMPAL	283	2	0	8	0	4000	12.0	70981	20	0	0	1	0	72	52	29.40	560	D	29.0	5.0	1.1	01/28/72	1100	RQM
0059	0059	66	CHEV	LOTSU	250	1	3	6	0	4000	12.0	82000	22	0	0	0	0	73	51	29.00	710	N	25.0	0.5	6.5	02/15/72	0330	RQM
0039	0104	66	CHEV	CHEVE	283	2	0	8	0	3500	11.2	26593	20	0	0	1	0	73	51	28.85	540	D	29.7	4.0	5.6	03/01/72	0900	RQM
0086	0105	66	CHEV	IMPAL	283	2	0	8	1	4000	13.2	35024	20	0	0	1	0	72	51	28.83	445	D	31.1	3.0	11.9	03/01/72	1100	RQM
0158	0182	66	CHEV	CAPRI	283	2	0	8	0	4000	12.0	58387	20	0	0	1	0	74	54	29.20	545	D	31.0	-15.0	6.1	03/28/72	1000	RQM
0062	0073	65	CHEV	CORVA	164	2	3	6	0	2750	9.9	43374	14	0	0	1	0	73	51	28.90	800	N	34.0	0.5	6.5	02/13/72	0800	RQM
0076	0078	65	CHEV	BELAI	283	2	3	8	0	4000	12.0	75452	20	0	0	1	0	73	53	29.45	800	N	31.0	4.0	5.2	02/19/72	1200	RQM
0106	0113	65	CHEV	BELAI	230	1	3	6	0	3500	11.2	44198	20	0	0	1	0	72	52	28.92	550	N	30.0	0.5	7.9	03/04/72	0800	RQM
0110	0117	65	CHEV	CORVA	164	2	0	6	0	2750	9.9	55165	15	0	0	1	0	70	56	29.45	525	D	31.0	6.0	4.3	03/05/72	1100	RQM
0160	0173	65	CHEV	CORVA	164	2	0	6	0	2750	9.9	65374	14	0	0	1	0	74	54	29.30	550	D	31.5	3.0	1.8	03/26/72	1230	RQM
0148	0178	65	CHEV	IMPAL	283	2	3	8	0	4000	12.0	54585	20	0	0	1	0	74	54	29.10	680	N	30.5	-15.0	6.0	03/27/72	1100	RQM
0028	0027	64	CHEV	NOVA	230	1	0	6	0	3000	10.3	60000	16	0	0	1	0	71	51	29.50	570	D	29.0	10.0	3.4	02/05/72	1530	RQM
0050	0051	64	CHEV	CHEVE	230	1	0	6	0	3000	10.3	63000	20	0	0	1	0	74	52	29.45	700	D	38.0	3.0	6.2	02/11/72	1600	RQM
0073	0075	64	CHEV	IMPAL	283	2	0	8	0	3500	11.2	91701	20	0	0	1	0	73	51	28.95	547	D	30.6	3.0	4.4	02/18/72	1400	RQM

CAR#	RUN#	YR	MAKE	MODEL	CID	B/L	TR/N	CY/L	A/C	INRT	RDHP	ODOMR	ET	EV/P	EX/H	EP/V	PC/VTP	D/N	DB	WB	BAROM	IRPM	DWEL	IGNT	ICO	DATE	TIME	PIC
0130	0139	64	CHEV	IMPAL	283	2	0	8	0	4000	12.0	55926	20	0	0	1	0	D	73	54	29.32	450	27.0	-20.0	2.2	03/12/72	0830	RQM
0156	0170	64	CHEV	IMPAL	327	4	0	8	1	3500	12.3	91779	20	0	0	1	0	D	74	57	29.30	530	32.0	-5.0	3.0	03/25/72	1400	RQM
0087	0096	63	CHEV	BISCA	230	1	3	6	0	3500	11.2	28533	20	0	0	1	0	D	73	53	29.17	750	33.0	4.0	9.6	02/24/72	1400	RQM
0024	0024	62	CHEV	IMPAL	283	2	0	8	0	3500	11.2	59700	20	0	0	0	0	D	72	51	29.60	600	30.0	6.0	5.2	02/04/72	1600	RQM
0058	0058	62	CHEV	BELAI	235	1	0	6	0	4000	12.0	95150	20	0	0	0	0	D	74	52	29.05	650	35.0	3.0	5.6	02/15/72	1100	RQM
0139	0152	62	CHEV	BELAI	235	1	0	6	0	3500	11.2	64700	20	0	0	0	0	D	74	58	29.20	570	27.0	5.0	6.5	03/18/72	1000	RQM
0149	0162	62	CHEV	LDTRU	283	2	4	8	0	4000	12.0	82910	20	0	0	0	0	D	74	56	29.40	690	31.5	-21.0	3.1	03/24/72	0700	RQM
0040	0062	61	CHEV	BISCA	235	1	0	6	0	3500	11.2	53000	17	0	0	0	0	D	74	52	29.14	480	35.0	0.3	0.5	02/15/72	1300	RQM
0112	0119	57	CHEV	BELAI	235	1	0	6	0	3500	11.2	75692	17	0	0	0	0	D	72	54	29.03	465	32.0	4.0	3.6	03/06/72	1130	RQM
0142	0156	57	CHEV	BELAI	235	1	0	6	0	3500	11.2	85163	17	0	0	0	0	D	73	60	28.85	570	23.0	0.0	2.5	03/21/72	1200	RQM
0034	0035	68	CHRY	NEWPO	383	2	0	8	1	4500	14.0	47611	24	0	1	1	0	D	74	53	29.50	620	35.0	7.0	4.9	02/07/72	1000	RQM
0152	0164	67	CHRY	NEWPO	383	4	0	8	0	4500	12.7	37589	20	0	0	1	0	D	75	57	29.45	570	22.5	7.0	8.1	03/24/72	1200	RQM
0078	0081	66	CHRY	300	383	4	0	8	1	4500	14.0	43166	25	0	0	1	0	D	72	51	29.62	675	29.0	11.0	4.8	02/20/72	1030	RQM
0113	0121	70	DODG	CHARG	383	2	0	8	1	3500	12.3	33372	20	0	1	1	0	D	71	54	28.70	610	36.0	2.0	2.4	03/07/72	0800	RQM
0125	0128	69	DODG	CHARG	318	2	0	8	0	4000	12.0	69701	20	0	1	1	0	D	73	52	29.55	600	35.0	-1.0	1.6	03/09/72	0730	RQM
0154	0168	69	DODG	CHARG	440	4	0	8	1	4000	13.2	58810	20	0	1	1	0	D	74	57	29.30	520	31.5	11.0	2.5	03/25/72	0830	RQM
0032	0135	67	DODG	DART	225	1	0	6	0	3000	10.3	53764	17	0	0	1	0	D	75	56	29.75	525	42.0	4.0	5.5	03/10/72	1000	RQM
0167	0183	67	DODG	CORON	440	4	0	8	0	3500	11.2	60017	19	0	0	1	0	D	74	55	29.20	750	29.0	10.0	2.2	03/28/72	1400	RQM
0061	0061	66	DODG	MONAC	383	2	0	8	0	4500	12.7	44000	25	0	0	1	0	D	74	52	29.10	620	35.0	5.0	3.7	02/15/72	1300	RQM
0096	0101	65	DODG	POLAR	318	2	0	8	0	4000	12.0	41009	20	0	0	1	0	D	73	52	29.50	670	32.0	9.0	3.0	02/26/72	0800	RQM
0168	0181	65	DODG	DART	225	1	0	6	0	3000	10.3	95728	18	0	0	1	0	D	74	53	29.15	605	47.0	-5.0	2.4	03/28/72	0800	RQM
0126	0138	64	DODG	DART	225	1	0	6	0	2750	9.9	57130	17	0	0	1	0	D	74	60	29.10	485	45.0	2.0	4.0	03/11/72	1000	RQM
0161	0174	62	DODG	DART	225	1	0	6	0	3500	11.2	91563	20	0	0	0	0	D	74	52	29.28	645	42.0	-17.0	0.5	03/26/72	1400	RQM
0026	0029	71	FORD	PINTO	098	1	4	4	0	2500	9.4	15000	16	1	1	1	0	N	71	51	29.45	500	26.0	2.0	6.8	02/05/72	1000	RQM
0069	0069	71	FORD	COUNT	400	2	0	8	1	4500	14.0	4640	25	1	1	1	0	D	73	55	28.85	625	33.0	6.0	5.7	02/17/72	1230	RQM
0165	0185	71	FORD	LTD	429	2	0	8	1	4000	13.2	33855	20	1	1	1	0	D	74	53	29.15	530	34.0	10.0	.3	03/28/72	1630	RQM
0007	0007	70	FORD	SQUIR	330	2	0	8	1	4500	14.0	24152	25	0	1	1	0	D	72	53	27.40	590	25.0	0.0	3.2	01/29/72	1430	RQM
0120	0125	70	FORD	MAVER	200	1	0	6	0	2750	9.9	20324	15	0	1	1	0	D	72	54	29.55	555	44.0	4.0	1.6	03/08/72	1000	RQM
0133	0143	70	FORD	GALAX	351	2	0	8	1	4000	13.2	54576	20	0	1	1	0	D	73	53	29.25	500	29.0	10.0	1.0	03/14/72	1000	RQM
0033	0034	69	FORD	FAIRL	302	2	0	8	0	4000	12.0	60138	20	0	1	1	0	D	74	52	29.30	500	33.0	-5.0	6.5	02/06/72	1500	RQM
0035	0036	69	FORD	COUNT	302	2	0	8	1	4500	14.0	55101	24	0	1	1	0	D	74	52	29.52	580	28.0	-5.0	6.8	02/07/72	1000	RQM
0146	0160	69	FORD	FAIRL	302	2	0	8	0	3500	11.2	38198	20	0	1	1	0	D	73	54	29.25	655	29.0	0.0	6.0	03/23/72	0930	RQM
0155	0169	69	FORD	FAIRL	250	1	0	6	0	3500	11.2	29934	20	0	1	1	0	D	74	57	29.30	575	41.0	-5.0	6.5	03/25/72	1100	RQM
0155	0171R	69	FORD	FAIRL	250	1	0	6	0	3500	11.2	29966	20	0	1	1	0	D	74	54	29.33	575	41.0	-5.0	6.5	03/26/72	0730	RQM
0013	0013	68	FORD	GALAX	390	4	0	8	1	4500	14.0	31000	25	0	1	1	0	D	72	53	29.20	660	29.0	5.0	7.2	02/02/72	1115	RQM
0031	0033	68	FORD	MUSTA	289	2	0	8	1	3500	12.3	43919	16	0	1	1	0	D	74	52	29.25	550	29.0	5.0	6.5	02/06/72	1300	RQM
0031	0047R	68	FORD	MUSTA	289	2	0	8	1	3500	12.3	43949	16	0	1	1	0	D	74	52	29.53	575	34.0	4.0	5.4	02/07/72	1800	RQM
0060	0060	68	FORD	COUNT	390	4	0	8	1	4500	14.0	39000	25	0	1	1	0	D	72	50	29.10	610	31.0	4.0	4.4	02/15/72	1500	RQM
0159	0172	68	FORD	MUSTA	200	1	0	6	0	3000	10.3	34350	15	0	1	1	0	D	73	54	29.35	500	48.0	2.0	2.7	03/26/72	1000	RQM
0043	0046	67	FORD	GALAX	289	2	0	8	0	4000	12.0	37000	20	0	0	1	0	D	74	52	29.74	400	30.0	8.0	6.1	02/10/72	1400	RQM
0051	0050	67	FORD	MUSTA	289	2	0	8	0	3000	10.3	45700	17	0	0	1	0	D	74	53	29.51	490	32.0	4.0	5.5	02/11/72	1400	RQM
0072	0074	67	FORD	GALAX	390	2	0	8	1	4000	13.2	48300	25	0	0	1	0	D	73	51	28.92	570	29.3	6.0	6.1	02/18/72	1000	RQM
0105	0112	67	FORD	MUSTA	428	4	4	8	0	3500	11.2	3616	17	0	0	1	0	D	72	52	29.05	500	31.0	6.0	2.5	03/04/72	1600	RQM
0141	0155	67	FORD	GALAX	390	2	0	8	0	4000	12.0	51438	20	0	0	1	0	D	72	60	28.95	560	30.5	2.0	2.8	03/21/72	1000	RQM
0021	0022	66	FORD	MUSTA	289	2	0	8	0	3000	10.3	99999	16	0	0	1	0	D	73	51	29.25	610	46.0	8.0	5.7	02/24/72	1000	RQM
0084	0085	66	FORD	COUNT	289	2	0	8	0	5000	13.4	43456	22	0	0	1	0	D	74	53	29.83	590	27.0	4.0	2.4	02/22/72	0830	RQM
0045	0040	65	FORD	GALAX	289	2	0	8	0	4000	12.0	58954	20	0	0	1	0	D	74	52	29.72	460	29.0	0.0	5.7	02/09/72	0600	RQM
0056	0052	65	FORD	GALAX	289	2	0	8	0	4000	12.0	17396	20	0	0	1	0	D	74	53	28.88	575	34.0	10.0	6.3	02/14/72	0700	RQM
0107	0114	65	FORD	FAIRL	289	2	0	8	0	3500	11.2	74711	20	0	0	1	0	D	73	53	29.00	525	25.0	5.0	6.0	03/04/72	1100	RQM
0129	0140	65	FORD	FAIRL	289	2	0	8	0	3500	11.2	51766	16	0	0	1	0	D	73	54	29.35	640	24.5	3.0	7.9	03/12/72	1000	RQM

CAR#	RUN#	YR	MAKE	MODEL	CID	B/R L	T/N R	C/Y L	A/C	INRT	RDHP	ODOMR	FT	EVP	EEK	PCV	VTP	DB	WB	BAROM	IRPM	D/N	DWEL	IGNT	ICO	DATE	TIME	PIC
0074	0079	64	FORD	FALCO	170	1	0	6	0	2750	9.9	32330	14	0	0	1	0	74	53	29.45	650	D	41.0	0.0	5.5	02/19/72	1500	RQM
0111	0118	64	FORD	GALAX	390	4	4	8	0	4000	12.0	57764	20	0	0	1	0	72	54	29.25	550	N	27.6	5.0	.1	03/06/72	0900	RQM
0143	0161	64	FORD	COUNT	352	2	0	8	0	4500	12.7	99999	20	0	0	1	0	74	54	29.25	550	D	31.5	7.0	0.1	03/23/72	1200	RQM
0144	0158	63	FORD	THUND	390	4	0	8	0	4000	12.0	88916	20	0	0	0	0	72	53	28.95	525	D	25.0	8.0	10.0	03/22/72	1000	RQM
0075	0076	62	FORD	GALAX	390	2	0	8	0	4000	12.0	52192	20	0	0	1	0	73	52	29.42	575	D	25.0	4.0	6.3	02/19/72	0800	RQM
0091	0093	62	FORD	GALAX	390	2	0	8	0	4000	12.0	86448	20	0	0	0	0	73	53	29.00	550	D	25.0	4.0	3.8	02/23/72	1400	RQM
0128	0142	61	FORD	FALCO	170	4	0	6	0	2500	9.4	33225	14	0	0	0	0	73	51	29.15	670	D	23.0	8.0	1.3	03/13/72	0830	RQM
0004	0004	57	FORD	SEDAN	223	1	3	6	0	3500	11.2	19048	20	0	0	0	0	74	54	29.48	600	N	25.0	1.0	1.3	01/30/72	1000	RQM
0025	0023	71	LINC	CONTI	460	4	0	8	1	5000	14.7	17039	26	1	1	1	0	73	53	29.30	500	D	33.0	4.0	6.5	02/04/72	1330	RQM
0079	0082	69	LINC	CONTI	460	4	0	8	1	5500	15.3	31060	26	0	1	1	0	73	52	29.57	550	D	34.0	9.0	5.7	02/20/72	1400	RQM
0063	0063	68	MERC	COLON	390	2	0	8	0	4500	12.7	43000	24	0	1	1	0	74	52	29.23	540	D	33.0	6.0	3.2	02/16/72	0900	RQM
0042	0077	67	MERC	PARKL	410	4	0	8	0	4500	12.7	49364	25	0	0	1	0	73	53	29.45	450	D	34.0	-6.0	0.7	02/19/72	1000	RQM
0151	0167	63	MERC	MONTE	390	2	0	8	0	4000	12.0	96832	20	0	0	0	0	74	56	29.35	595	D	27.0	-7.0	4.6	03/24/72	1730	RQM
0124	0133	70	OLDS	CUTLA	350	2	0	8	1	3500	12.3	46330	20	0	1	1	0	73	54	29.63	725	D	19.0	9.0	3.2	03/09/72	1800	RQM
0124	0137R	70	OLDS	CUTLA	350	2	0	8	1	3500	12.3	46354	0	0	1	1	0	75	54	29.60	725	D	19.0	9.0	3.0	03/10/72	1600	RQM
0127	0134	69	OLDS	CUTLA	350	4	0	8	1	3500	12.3	27089	20	0	1	1	0	73	53	29.75	600	D	31.0	7.0	2.5	03/10/72	0800	RQM
0153	0165	69	OLDS	DELTA	455	4	0	8	1	4500	14.0	34832	25	0	1	1	0	75	57	29.40	400	D	27.5	7.0	5.4	03/24/72	1300	RQM
0044	0041	68	OLDS	NINET	455	4	0	8	1	4500	14.0	31287	24	0	1	1	0	74	52	29.75	760	D	30.0	7.0	0.2	02/09/72	0800	RQM
0140	0154	68	OLDS	CUTLA	350	4	0	8	0	4000	12.0	56357	20	0	1	1	0	74	59	29.30	650	D	31.0	5.0	1.2	03/20/72	1000	RQM
0140	0157R	68	OLDS	CUTLA	350	4	0	8	0	4000	12.0	56391	20	0	1	1	0	74	60	28.80	650	D	31.0	5.0	1.2	03/21/72	1400	RQM
0053	0054	66	OLDS	NINET	425	4	0	8	1	4500	14.0	44000	22	0	0	1	0	74	53	28.80	510	D	26.0	-12.0	1.7	02/14/72	1215	RQM
0100	0106	65	OLDS	DYNAM	425	2	0	8	0	4000	12.0	42618	20	0	0	1	0	73	53	29.33	475	D	30.0	6.0	5.7	03/02/72	1430	RQM
0100	0111R	65	OLDS	DYNAM	425	2	0	8	0	4000	12.0	42623	20	0	0	1	0	72	52	29.24	475	D	29.0	6.0	5.7	03/03/72	1200	RQM
0017	0018	64	OLDS	JETST	394	4	0	8	1	4500	14.0	67000	21	0	0	1	0	72	52	29.21	525	D	29.0	-2.0	5.7	02/03/72	1200	RQM
0162	0175	62	OLDS	EIGHT	394	4	0	8	0	4500	12.7	50620	20	0	0	0	0	74	52	29.10	640	D	29.0	7.0	6.4	03/27/72	0730	RQM
0039	0043	61	OLDS	DYNAM	394	2	0	8	1	4500	14.0	99999	20	0	0	0	0	74	52	29.75	640	D	30.0	5.0	0.2	02/09/72	1300	RQM
0081	0094	59	OLDS	DYNAM	371	2	0	8	0	4500	12.7	95746	20	0	0	0	0	76	53	29.43	650	D	30.0	5.0	6.1	02/20/72	1700	RQM
0123	0130	71	PLYM	FURY	318	2	0	8	0	4000	12.0	13421	20	1	1	1	0	74	54	29.60	700	D	30.0	1.0	8.7	03/09/72	1100	RQM
0010	0010	70	PLYM	BELVE	318	2	0	8	1	4000	12.0	11631	20	0	1	1	0	72	52	29.42	700	D	34.0	0.0	1.3	02/01/72	0900	RQM
0118	0127	70	PLYM	BARAC	383	4	4	8	0	3500	11.2	24798	20	0	1	1	0	73	53	29.60	640	N	33.4	4.0	4.4	03/08/72	1530	RQM
0088	0091	69	PLYM	SATAL	318	2	0	8	0	3500	11.2	45814	20	0	1	1	0	72	52	29.12	747	D	27.0	00.0	0.5	02/23/72	1000	RQM
0088	0098R	69	PLYM	SATAL	318	2	0	8	0	3500	11.2	45846	20	0	1	1	0	73	53	29.20	747	D	27.0	00.0	0.5	02/24/72	1000	RQM
0006	0006	68	PLYM	FURY	318	2	0	8	0	4000	12.0	35614	24	0	1	1	0	72	56	29.45	600	D	29.0	3.0	1.3	01/29/72	1630	RQM
0103	0110	68	PLYM	FURY	383	4	0	8	1	4000	13.2	99999	20	0	1	1	0	72	51	29.31	590	D	27.3	6.0	2.5	03/03/72	1100	RQM
0029	0031	67	PLYM	FURY	225	1	3	6	0	4000	12.0	66383	25	0	0	1	0	72	52	29.20	560	N	42.0	4.0	6.5	02/06/72	1130	RQM
0057	0057	66	PLYM	FURY	383	4	3	8	1	4000	13.2	56200	20	0	0	1	0	72	51	28.80	525	N	29.0	-9.0	5.9	02/14/72	1800	RQM
0097	0102	65	PLYM	FURY	225	1	0	6	0	4000	12.0	60825	20	0	0	1	0	73	53	29.50	600	D	45.0	2.0	6.5	02/26/72	1100	RQM
0157	0180	64	PLYM	VALIA	225	1	0	6	0	3000	10.3	54304	15	0	0	1	0	74	54	29.05	575	D	44.0	-5.0	3.2	03/27/72	1630	RQM
0011	0011	71	PONT	LEMAN	350	2	0	8	1	4000	13.2	10651	18	1	1	1	0	72	52	29.21	710	D	29.0	10.0	6.0	02/02/72	1700	RQM
0011	0016R	71	PONT	LEMAN	350	2	0	8	1	4000	13.2	10694	18	1	1	1	0	70	50	28.93	710	D	29.0	10.0	6.0	02/03/72	0700	RQM
0065	0065	71	PONT	CATAL	400	4	0	8	1	4500	14.0	9200	22	1	1	1	0	74	52	29.10	700	D	30.0	12.0	6.0	02/16/72	1800	RQM
0015	0015	70	PONT	CATAL	400	2	0	8	1	4500	14.0	17743	26	0	1	1	0	72	52	29.18	610	D	31.0	10.0	2.4	02/02/72	1430	RQM
0104	0109	70	PONT	TEMPE	350	2	0	8	1	3500	12.3	30369	20	0	1	1	0	73	52	29.31	585	D	30.6	7.0	4.4	03/03/72	0900	RQM
0052	0053	69	PONT	LEMAN	350	2	0	8	0	3500	11.2	27996	20	0	1	1	0	74	53	28.82	500	D	32.0	6.0	4.8	02/14/72	1000	RQM
0092	0094	69	PONT	TEMPE	250	1	0	6	0	3500	11.2	39485	17	0	1	1	0	72	52	29.20	590	D	32.0	00.0	6.4	02/24/72	0800	RQM
0014	0014	68	PONT	EXECU	400	2	0	8	1	4500	14.0	46000	26	0	1	1	0	72	52	29.14	700	D	34.0	18.0	0.3	02/01/72	1430	RQM
0054	0056	68	PONT	TEMPE	350	2	0	8	1	4000	13.2	61079	20	0	1	1	0	73	53	28.75	540	D	30.0	9.0	6.5	02/14/72	1600	RQM
0131	0141	67	PONT	BONNE	400	4	0	8	0	4500	12.7	35868	20	0	0	1	0	74	56	29.35	650	D	32.0	12.0	.8	03/12/72	1400	RQM
0019	0020	66	PONT	TEMPE	230	1	0	6	0	3500	11.2	34353	21	0	0	1	0	72	52	29.20	650	D	33.0	5.0	2.1	02/03/72	1545	RQM
0055	0055	66	PONT	LEMAN	326	2	0	8	0	3500	11.2	71500	20	0	0	1	0	72	52	28.74	580	D	32.0	4.0	5.3	02/14/72	1400	RQM

CAR#	RUN#	YR	MAKE	MODEL	CID	B L	B R	T N	C Y L	A / C	INRT	RDHP	ODOMR	FT	EV P	EE H	EP C V	VTP	DB	WB	BAROM	IRPM	D / N	DWFL	IGNT	ICO	DATE	TIME	PIC
0109	0116	65	PONT	CATAL	389	2	0	8	0	4000	12.0	79815	20	0	0	1	0	72	60	29.40	550	D	30.0	5.0	1.8	03/05/72	0900	RQM
0117	0126	65	PONT	LEMAN	326	2	0	8	0	3500	11.2	90585	20	0	0	1	0	73	53	29.60	530	D	32.0	4.0	5.2	03/08/72	1400	RQM
0147	0166	65	PONT	CATAL	389	2	0	8	1	4000	13.2	76818	20	0	0	1	0	75	56	29.35	500	D	33.0	10.0	0.3	03/24/72	1500	RQM
0163	0179	64	PONT	CATAL	389	2	0	8	0	4500	12.7	69477	20	0	0	1	0	72	52	29.21	650	D	34.0	12.0	0.2	02/03/72	1530	RQM
0166	0184	64	PONT	CATAL	389	2	0	8	0	4000	12.0	82805	20	0	0	1	0	74	54	29.10	520	D	32.0	0.0	.1	03/27/72	1500	RQM
0108	0115	63	PONT	BONNE	389	4	0	8	0	4000	12.0	84194	20	0	0	0	0	74	55	29.15	625	D	21.5	10.0	.2	03/28/72	1600	RQM
0108	0120R	63	PONT	BONNE	389	4	0	8	0	4000	12.0	74233	20	0	0	0	0	73	53	29.00	660	D	35.0	5.0	1.6	03/04/72	1300	RQM
0170	0187	58	PONT	CHIEF	370	2	0	8	0	4000	12.0	86524	20	0	0	0	0	72	54	28.95	600	D	29.0	5.0	1.6	03/06/72	1400	RQM
0090	0092	71	RAMB	GREML	232	1	0	6	0	2250	8.8	10296	15	1	1	1	0	73	55	29.10	560	D	30.0	5.0	3.6	03/30/72	0800	RQM
0036	0037	70	RAMB	HORNE	199	1	0	6	0	3000	10.3	23514	16	0	1	1	0	74	52	29.51	570	D	32.0	-3.0	6.0	02/07/72	1300	RQM
0068	0068	69	RAMB	AMBAS	343	2	0	8	0	4000	12.0	54325	22	0	1	1	0	73	51	28.87	530	D	31.0	0.0	4.2	02/17/72	0730	RQM
0023	0025	66	RAMB	AMERI	199	1	0	6	0	3000	10.3	66514	16	0	0	1	0	72	52	29.60	750	D	30.0	0.0	4.7	02/04/72	1800	RQM
0048	0048	65	RAMB	CLASS	199	1	3	6	0	3000	10.3	37072	17	0	0	1	0	74	52	29.62	630	N	34.0	3.0	1.9	02/11/72	1000	RQM
0047	0045	64	RAMB	CLASS	287	2	0	8	0	3500	11.2	38000	17	0	0	1	0	74	52	29.74	560	D	25.0	4.0	6.3	02/10/72	1200	RQM
0098	0103	71	VOLK	BEETL	097	1	4	4	0	2000	8.3	19769	12	1	1	1	0	72	53	28.50	850	N	48.0	1.0	2.3	02/28/72	1630	RQM
0003	0003	70	VOLK	KARMA	097	1	4	4	0	2250	8.8	28576	10	1	1	1	0	68	52	30.52	500	N	55.0	0.0	0.3	01/27/72	1400	RQM
0038	0039	69	VOLK	SQUAR	097	1	4	4	0	2250	8.8	17382	11	0	1	1	0	74	52	29.60	650	N	55.0	2.0	0.5	02/09/72	0830	RQM
0102	0107	69	VOLK	BEETL	091	1	4	4	0	2000	8.3	20999	12	0	1	1	0	73	52	29.30	475	N	28.0	0.0	1.4	03/02/72	1300	RQM
0046	0042	68	VOLK	FASTB	091	1	4	4	0	2250	8.8	34000	15	0	1	1	0	74	52	29.80	650	N	55.0	0.0	0.4	02/09/72	1100	RQM
0077	0080	67	VOLK	BEETL	091	1	4	4	0	2000	8.3	27193	12	0	0	1	0	70	51	29.60	700	N	30.0	7.0	6.5	02/20/72	0800	RQM
0095	0100	66	VOLK	BEETL	078	1	4	4	0	2000	8.3	25481	12	0	0	1	0	73	52	29.20	700	N	60.0	9.0	3.0	02/25/72	1200	RQM
0066	0066	65	VOLK	BEETL	073	1	4	4	0	2000	8.3	56000	12	0	0	1	0	72	51	29.10	650	N	46.0	1.0	5.8	02/16/72	1500	RQM
0037	0038	64	VOLK	BEETL	073	1	4	4	0	2000	8.3	13817	10	0	0	0	0	74	52	29.51	575	N	55.0	0.0	5.7	02/07/72	1530	RQM
0121	0132	63	VOLK	BEETL	073	1	4	4	0	2000	8.3	16771	12	0	0	0	0	74	54	29.60	750	N	45.0	9.0	3.5	03/09/72	1600	RQM
0002	0028	62	VOLK	BEETL	073	1	4	4	0	2000	8.3	99999	10	0	0	0	0	72	54	29.45	800	N	52.0	0.0	2.9	02/05/72	0800	RQM
0122	0131	61	VOLK	BEETL	073	1	4	4	0	2000	8.3	75875	12	0	0	0	0	74	53	29.60	700	N	48.0	10.0	9.0	03/09/72	1500	RQM
0027	0030	58	VOLK	KARMA	073	1	4	4	0	2250	8.8	99999	10	0	0	0	0	71	51	29.45	450	N	43.0	0.0	5.7	02/05/72	1330	RQM
0009	0009	70	MISC	TOYOT	071	1	4	4	0	2000	8.3	24907	11	0	3	1	0	74	54	30.21	600	N	55.0	-5.0	2.1	01/31/72	1400	RQM

CAR#	RUN#	YR	MAKE	MODEL	CID	BBL	TRN	CYL	A/C	INRT	RDHP	ODOMR	FT	EVP	EXH	EVC	VTP	DB	WB	BAROM	IRPM	D/N	DWEL	IGNT	ICO	DATE	TIME	PIC
0169	0179	71	BUIC	SKYLA	350	2	0	8	1	4000	13.2	7959	22	1	1	1	0	80	70	29.95	800	D	24.0	13.0	4.4	05/07/72	0930	MEC
0029	0032	70	BUIC	RIVIE	455	4	0	8	1	4500	14.0	25818	21	0	1	1	0	75	62	30.23	480	D	32.0	0.0	5.8	04/01/72	1310	MEC
0143	0153	69	BUIC	ELECT	430	4	0	8	1	4500	14.0	24115	25	0	1	1	0	82	71	29.97	600	D	29.5	1.0	3.7	05/02/72	0945	MEC
0023	0024	68	BUIC	LESAB	350	2	0	8	1	4500	14.0	39491	25	0	1	1	0	68	60	29.93	700	D	33.0	3.0	8.0	03/30/72	1710	MEC
0023	0025R	68	BUIC	LESAB	350	2	0	8	1	4500	14.0	39525	25	0	1	1	0	68	59	30.06	700	D	33.0	3.0	8.0	03/31/72	0730	MEC
0037	0040	68	BUIC	SKYLA	350	4	0	8	1	4000	13.2	47737	20	0	1	1	0	72	62	30.22	760	D	29.0	8.0	5.3	04/04/72	0940	MEC
0003	0003	67	BUIC	ELECT	430	4	0	8	1	4500	14.0	78407	25	0	0	1	0	75	67	29.99	600	D	26.0	4.5	1.4	03/26/72	1150	MEC
0041	0045	66	BUIC	SPECI	225	2	0	6	1	3500	12.3	48821	18	0	0	1	0	78	66	30.22	600	D	32.0	6.0	8.5	04/05/72	0950	MEC
0012	0012	65	BUIC	WILDC	425	4	0	8	1	4500	14.0	83963	25	0	0	1	0	75	70	29.73	650	D	27.0	6.0	5.8	03/28/72	0900	MEC
0168	0178	64	BUIC	WILDC	425	4	0	8	1	4500	14.0	90960	20	0	0	1	0	78	64	29.94	650	D	29.0	6.0	8.5	05/07/72	0725	MEC
0116	0126	63	BUIC	LESAB	401	2	0	8	1	4500	14.0	51500	20	0	0	1	0	86	74	30.12	560	D	30.0	12.0	1.8	04/25/72	1700	MEC
0072	0078	60	BUIC	LESAB	364	2	0	8	1	4500	14.0	36214	20	0	0	0	0	86	75	30.00	500	D	27.0	-12.0	4.7	04/12/72	1430	MEC
0072	0078R	60	BUIC	LESAB	364	2	0	8	1	4500	14.0	36255	20	0	0	0	0	86	75	29.80	500	D	27.0	-12.0	4.7	04/13/72	1545	MEC
0158	0168	68	CADI	DEVIL	472	4	0	8	1	5000	14.7	66273	26	0	3	1	0	82	72	30.15	550	D	30.0	6.0	5.6	05/05/72	0910	MEC
0145	0155	65	CADI	DEVIL	429	4	0	8	1	5000	14.7	38263	26	0	0	1	0	86	75	30.02	550	D	30.0	8.0	4.8	05/02/72	1430	MEC
0098	0106	71	CHEV	VEGA	140	2	3	4	1	2500	10.3	13921	11	1	3	1	0	86	75	30.11	700	N	40.0	4.0	5.8	04/19/72	1330	MEC
0117	0127	71	CHEV	KINGS	400	2	0	8	1	5000	14.7	12829	24	1	1	1	0	73	62	30.04	600	D	30.0	11.0	1.9	04/26/72	0815	MEC
0142	0152	71	CHEV	MONTE	350	2	0	8	1	4000	13.2	9227	26	1	1	1	0	80	69	29.97	670	D	29.3	10.0	4.1	05/02/72	0800	MEC
0150	0160	71	CHEV	CAMER	307	2	0	8	1	3500	12.3	14128	18	1	1	1	0	86	75	30.04	625	D	32.0	4.0	6.0	05/03/72	1500	MEC
0153	0163	71	CHEV	BELAI	350	2	0	8	1	4500	14.0	33499	24	1	1	1	0	82	72	30.20	585	D	28.3	6.0	1.6	05/04/72	0940	MEC
0155	0165	71	CHEV	MONTE	350	4	0	8	1	4000	13.2	29934	20	1	1	1	0	86	75	30.25	600	D	24.0	11.0	3.8	05/04/72	1530	MEC
0163	0173	71	CHEV	KINGS	400	4	0	8	1	5000	14.7	20730	25	1	1	1	0	74	62	30.06	600	D	30.0	8.0	2.7	05/06/72	0720	MEC
0006	0004	70	CHEV	MONTE	350	2	0	8	1	4000	13.2	36220	20	0	1	1	0	73	62	30.07	700	D	17.0	0.0	1.6	03/25/72	0935	MEC
0106	0115	70	CHEV	CHEVE	307	2	0	8	1	3500	12.3	36218	20	0	1	1	0	74	62	30.11	625	D	32.0	6.0	2.0	04/22/72	0900	MEC
0122	0132	70	CHEV	KINGS	350	2	0	8	1	4500	14.0	17807	22	0	1	1	0	82	72	30.02	530	D	30.0	5.0	5.5	04/27/72	0905	MEC
0147	0157	70	CHEV	IMPAL	350	2	0	8	1	4000	13.2	18295	24	0	1	1	0	82	72	30.05	650	D	41.0	8.0	5.1	05/03/72	0800	MEC
0011	0011	69	CHEV	NOVA	307	2	0	8	1	3500	12.3	52500	18	0	1	1	0	81	74	29.70	450	D	24.0	7.0	5.0	03/27/72	1730	MEC
0104	0113	69	CHEV	NOVA	307	2	0	8	1	3500	12.3	16103	18	0	1	1	0	84	72	29.95	620	D	29.0	4.0	5.3	04/21/72	0800	MEC
0107	0116	69	CHEV	IMPAL	327	2	0	8	1	4000	13.2	47535	24	0	1	1	0	82	72	30.15	620	D	28.0	6.0	2.2	04/22/72	1030	MEC
0125	0135	69	CHEV	KINGS	327	2	0	8	1	4500	14.0	87684	24	0	1	1	0	70	66	30.00	550	D	27.0	8.0	7.0	04/27/72	1600	MEC
0013	0013	68	CHEV	CAPRI	327	4	0	8	1	4000	13.2	89331	24	0	1	1	0	84	73	29.73	560	D	35.0	0.0	6.1	03/28/72	1105	MEC
0043	0048	68	CHEV	CHEVE	396	4	4	8	1	4000	13.2	67177	24	0	3	1	0	86	75	30.17	830	N	25.0	10.0	1.6	04/05/72	1430	MEC
0057	0063	68	CHEV	CHEVE	336	4	0	8	1	4000	13.2	53834	24	0	1	1	0	84	72	30.04	550	D	30.0	4.0	4.3	04/08/72	1705	MEC
0059	0065	68	CHEV	IMPAL	327	2	0	8	1	4000	13.2	47412	24	0	1	1	0	86	75	30.10	550	D	33.0	-4.0	6.0	04/10/72	1230	MEC
0035	0038	67	CHEV	BELAI	283	2	0	8	1	4000	13.2	99999	24	0	0	1	0	80	73	30.02	500	D	38.0	08.0	7.5	04/03/72	1800	MEC
0035	0043R	67	CHEV	BELAI	283	2	0	8	1	4000	13.2	99999	24	0	0	1	0	85	74	30.17	500	D	38.0	8.0	7.5	04/04/72	1745	MEC
0078	0086	67	CHEV	CHEVA	164	2	0	6	0	2750	9.9	30158	14	0	0	1	0	86	75	29.78	625	D	40.0	12.0	1.7	04/14/72	1155	MEC
0105	0114	67	CHEV	IMPAL	327	4	0	8	1	4000	13.2	63043	24	0	0	1	0	86	75	29.95	550	D	30.0	-3.0	5.5	04/20/72	1300	MEC
0042	0047	66	CHEV	IMPAL	283	2	0	8	1	4000	13.2	54421	20	0	0	1	0	86	75	30.17	640	D	29.0	6.0	4.7	04/05/72	1400	MEC
0097	0105	66	CHEV	CAPRI	327	4	0	8	1	4000	13.2	88956	20	0	0	1	0	81	70	30.04	550	D	34.5	5.0	6.0	04/19/72	0950	MEC
0112	0122	66	CHEV	IMPAL	327	4	0	8	1	4000	13.2	78627	20	0	0	1	0	73	59	30.12	530	D	31.0	12.0	5.9	04/25/72	0720	MEC
0118	0128	66	CHEV	CHEVE	230	1	0	6	1	3500	12.3	53312	20	0	0	1	0	80	68	30.04	550	D	32.0	8.5	5.5	04/26/72	1015	MEC
0007	0007	65	CHEV	BISCA	283	2	0	8	1	4000	13.2	75283	20	0	0	1	0	77	71	29.79	600	D	24.0	8.0	5.6	03/27/72	0940	MEC
0015	0015	65	CHEV	BELAI	327	4	0	8	1	4000	13.2	36830	20	0	0	1	0	86	70	29.63	500	D	29.0	5.0	6.0	03/28/72	1615	MEC
0060	0066	65	CHEV	BELAI	283	2	0	8	1	4000	13.2	71490	20	0	0	1	0	86	75	30.12	600	D	37.0	0.0	5.5	04/10/72	1450	MEC
0141	0151	65	CHEV	IMPAL	327	2	0	8	1	4000	13.2	57457	20	0	0	1	0	84	75	30.06	650	D	21.0	-2.0	5.4	05/01/72	1750	MEC
0081	0089	64	CHEV	BELAI	283	2	0	8	1	3500	12.3	47495	20	0	0	1	0	74	72	29.90	570	D	22.5	6.0	6.0	04/15/72	0800	MEC
0086	0094	64	CHEV	ELCAM	283	2	0	8	1	3500	12.3	99999	20	0	0	1	0	76	62	30.18	500	D	29.0	3.0	5.4	04/17/72	0830	MEC
0087	0095	64	CHEV	LUTRU	230	1	3	6	1	3500	12.3	82864	20	0	0	1	0	82	69	30.18	760	N	33.0	0.4	5.3	04/17/72	1020	MEC
0090	0098	64	CHEV	VAN	230	1	3	6	0	3500	11.2	91199	20	0	0	1	0	84	72	30.15	650	N	38.0	7.0	6.0	04/17/72	1830	MEC

CAR#	RUN#	YR	MAKE	MODEL	CID	BBL	TRN	CYL	A/C	INRT	RDMP	ODOMR	FT	EVP	EXH	EPC V	VTP	DB	WB	BAROM	IRPM	D/N	DWEL	IGNT	ICO	DATE	TIME	PIC
0005	0005	63	CHEV	BELAI	327	4	0	8	1	4000	13.2	99999	20	0	0	1	0	81	62	30.02	550	D	30.0	1.0	5.6	03/25/72	1445	MEC
0063	0069	63	CHEV	IMPAL	327	4	0	8	0	3500	11.2	84815	20	0	0	1	0	77	73	30.13	600	D	28.0	2.0	6.8	04/11/72	0830	MEC
0084	0092	63	CHEV	IMPAL	327	4	0	8	1	3500	12.3	84825	20	0	0	1	0	86	75	29.90	520	D	35.0	10.0	4.2	04/15/72	1600	MEC
0137	0147	63	CHEV	BISCA	194	1	3	6	1	3500	12.3	80515	20	0	0	1	0	82	72	30.06	600	N	32.0	8.0	3.4	05/01/72	0820	MEC
0028	0031	62	CHEV	CORVA	145	2	3	6	0	2750	9.9	49284	14	0	0	0	0	78	58	30.22	680	N	33.0	3.0	4.9	04/01/72	1110	MEC
0038	0041	61	CHEV	BELAI	235	1	0	6	1	4000	13.2	99999	20	0	0	0	0	79	65	30.22	580	D	32.0	6.0	6.0	04/04/72	1140	MEC
0135	0145	60	CHEV	IMPAL	283	2	0	8	0	4000	12.0	88770	20	0	0	0	0	86	75	30.02	630	D	31.0	8.0	2.2	04/29/72	1500	MEC
0030	0033	59	CHEV	BELAI	235	1	0	6	0	4000	12.0	99999	20	0	0	0	0	79	70	30.15	650	D	32.0	6.0	0.3	04/01/72	1645	MEC
0160	0170	59	CHEV	IMPAL	283	2	0	8	0	4000	12.0	99999	20	0	0	0	0	86	75	30.12	450	D	28.0	0.0	2.1	05/05/72	1330	MEC
0054	0059	58	CHEV	IMPAL	283	2	0	8	1	3500	12.3	99999	20	0	0	0	0	74	63	29.97	550	D	31.0	-1.0	6.0	04/08/72	0710	MEC
0024	0026	57	CHEV	CHEVR	283	2	3	8	0	3500	11.2	68030	20	0	0	0	0	68	57	30.09	750	N	33.0	3.0	5.9	03/31/72	0940	MEC
0131	0141	69	CHRY	NEWYO	383	2	0	8	1	4500	14.0	55791	24	0	1	1	0	86	75	30.01	850	D	30.0	9.0	3.7	04/28/72	1715	MEC
0159	0169	57	CHRY	WINDS	354	2	0	8	0	4000	12.0	81433	23	0	0	0	0	84	74	30.10	540	D	29.0	6.0	8.5	05/05/72	1100	MEC
0126	0136	71	DODG	DART	225	1	0	6	1	3000	11.3	16836	18	1	1	1	0	78	71	30.01	610	D	49.0	-2.0	4.6	04/27/72	1730	MEC
0152	0162	70	DODG	SUPER	383	4	0	8	1	4000	13.2	58303	24	0	1	1	0	78	62	30.20	690	D	31.2	6.0	6.0	05/04/72	0750	MEC
0050	0055	69	DODG	CORON	383	2	0	8	1	3500	12.3	45045	19	0	1	1	0	84	73	29.85	640	D	27.0	5.0	5.7	04/07/72	1050	MEC
0089	0097	68	DODG	CORON	383	2	0	8	1	4000	13.2	56495	18	0	1	1	0	86	75	30.15	550	D	30.0	0.0	2.1	04/17/72	1600	MEC
0109	0118	67	DODG	CORON	318	2	0	8	1	3500	12.3	33371	19	0	0	1	0	77	67	30.08	690	D	30.0	2.0	4.2	04/24/72	0730	MEC
0108	0117	66	DODG	CORON	383	2	0	8	1	3500	12.3	91546	19	0	0	1	0	84	74	30.15	600	D	29.0	5.0	4.5	04/22/72	1330	MEC
0108	0121R	66	DODG	CORON	383	2	0	8	1	3500	12.3	91558	19	0	0	1	0	86	75	30.10	600	D	29.0	5.0	4.5	04/24/72	1530	MEC
0065	0071	65	DODG	DART	170	1	0	6	1	3000	11.3	30863	15	0	0	1	0	86	75	30.20	730	D	35.0	4.0	5.0	04/11/72	1330	MEC
0010	0010	64	DODG	DART	170	1	3	6	1	3000	11.3	83497	18	0	0	1	0	84	74	29.72	550	N	30.0	12.0	3.9	03/27/72	1430	MEC
0075	0083	71	FORD	GALAX	351	2	0	8	1	4000	13.2	21163	24	1	1	1	0	84	72	29.84	620	D	32.0	0.0	0.7	04/13/72	1730	MEC
0088	0096	71	FORD	MAVER	200	1	0	6	1	2750	10.9	3580	16	1	1	1	0	86	75	30.15	750	D	40.0	-3.0	0.7	04/17/72	1330	MEC
0099	0107	71	FORD	COUNT	351	2	0	8	1	4500	14.0	19133	25	1	1	1	0	86	75	30.11	700	D	31.0	-4.0	0.1	04/19/72	1530	MEC
0099	0111R	71	FORD	COUNT	351	2	0	8	1	4500	14.0	19133	25	1	1	1	0	86	75	29.95	700	D	31.0	-4.0	0.1	04/20/72	1530	MEC
0103	0112	71	FORD	PINTO	098	1	4	4	0	2250	8.8	30134	11	1	1	1	0	86	75	29.95	1300	N	47.0	13.0	0.1	04/20/72	1715	MEC
0123	0133	71	FORD	MAVER	200	1	0	6	1	3000	11.3	33354	14	1	1	1	0	77	75	30.01	650	D	35.0	0.0	2.8	04/27/72	1110	MEC
0014	0014	70	FORD	FALCO	250	1	3	6	0	3500	11.2	36426	16	0	1	1	0	85	70	29.69	500	N	32.0	-2.0	5.0	03/28/72	1350	MEC
0052	0057	70	FORD	GALAX	390	2	0	8	1	4500	14.0	29541	25	0	1	1	0	86	75	29.82	590	D	29.5	5.0	5.5	04/07/72	1510	MEC
0080	0088	70	FORD	LTD	390	2	0	8	1	4500	14.0	37535	25	0	1	1	0	86	75	29.80	650	D	27.0	6.0	0.1	04/14/72	1700	MEC
0016	0016	69	FORD	FAIRL	302	2	0	8	1	3500	12.3	49980	20	0	1	1	0	84	68	29.78	540	D	33.0	-6.0	4.8	03/28/72	1830	MEC
0016	0019R	69	FORD	FAIRL	302	2	0	8	1	3500	12.3	49990	20	0	1	1	0	73	60	29.92	540	D	33.0	-6.0	4.8	03/29/72	1330	MEC
0040	0044	69	FORD	FAIRL	302	2	0	8	1	4000	13.2	39337	25	0	1	1	0	68	62	30.21	600	D	33.0	-6.0	3.3	04/05/72	0750	MEC
0046	0051	69	FORD	LTD	429	4	0	8	1	4500	14.0	25336	25	0	1	1	0	86	72	30.00	650	D	31.0	0.0	2.8	04/06/72	1330	MEC
0096	0104	69	FORD	MUSTA	351	2	0	8	1	3500	12.3	61378	20	0	1	1	0	80	75	30.04	660	D	31.0	0.0	2.9	04/19/72	0730	MEC
0082	0090	68	FORD	THUND	429	4	0	8	1	4500	14.0	54560	24	0	1	1	0	84	72	29.90	560	D	35.0	2.0	5.6	04/15/72	1100	MEC
0136	0146	68	FORD	FALCO	170	1	3	6	0	3000	10.3	25777	16	0	3	1	0	85	75	30.01	1000	N	48.0	26.0	.1	04/29/72	1720	MEC
0149	0159	68	FORD	FAIRL	302	2	0	8	1	3500	12.3	70875	20	0	1	1	0	86	75	30.06	650	D	31.0	6.0	3.5	05/03/72	1330	MEC
0044	0049	67	FORD	MUSTA	289	2	0	8	1	3000	11.3	56142	16	0	0	1	0	86	75	30.06	550	D	27.0	0.0	1.0	04/06/72	0805	MEC
0045	0050	67	FORD	MUSTA	289	2	0	8	1	3000	11.3	28049	16	0	0	1	0	86	75	30.07	540	D	31.0	-6.0	4.8	04/06/72	1010	MEC
0053	0058	67	FORD	GALAX	390	2	0	8	1	4000	13.2	62153	25	0	0	1	0	86	72	29.95	650	D	32.0	6.0	4.8	04/07/72	1720	MEC
0053	0061R	67	FORD	GALAX	390	2	0	8	1	4000	13.2	62153	25	0	0	1	0	86	75	30.00	650	D	32.0	6.0	4.8	04/08/72	1110	MEC
0001	0001	66	FORD	LTD	352	4	0	8	1	4000	13.2	65469	25	0	0	1	0	78	70	29.91	620	D	33.0	9.0	1.3	03/24/72	1345	MEC
0022	0023	66	FORD	RANCH	289	2	0	8	1	3000	11.3	58088	16	0	0	1	0	68	59	29.93	530	D	30.0	0.0	0.0	03/30/72	1400	MEC
0047	0052	66	FORD	LTD	390	4	0	8	1	4000	13.2	81053	25	0	0	1	0	86	72	29.97	620	D	29.0	10.0	3.5	04/06/72	0800	MEC
0091	0099	66	FORD	FALCO	200	1	3	6	1	3000	11.3	62662	16	0	0	1	0	77	70	30.07	700	N	33.0	0.0	5.5	04/18/72	0850	MEC
0021	0022	65	FORD	GALAX	352	4	0	8	1	4000	13.2	90012	20	0	0	1	0	68	58	29.93	660	D	30.0	8.0	1.8	03/30/72	1100	MEC
0058	0064	65	FORD	CUSTO	240	1	3	6	1	3500	12.3	67091	20	0	0	1	0	74	68	30.15	900	N	38.0	4.0	1.0	04/10/72	0800	MEC
0079	0087	65	FORD	MUSTA	200	1	3	6	1	3000	11.3	84299	16	0	0	1	0	86	75	29.80	1000	N	34.0	30.0	0.1	04/14/72	1500	MEC

CAR#	RUN#	YR	MAKE	MODEL	CID	BBL	TRN	CYL	A/C	INRT	RDHP	ODOMR	ET	EVP	EXH	EPC V	VTP	DR	WB	BAROM	IRPM	D/N	DSEL	IGNT	ICO	DATE	TIME	PIC
0095	0103	65	FORD	GALAX	289	2	3	8	0	4200	12.0	79354	20	0	0	1	0	86	75	30.15	600	N	30.0	8.0	4.7	04/18/72	1720	MEC
0032	0035	64	FORD	GALAX	289	2	0	8	1	4000	13.2	90292	20	0	0	1	0	79	74	30.02	600	D	30.0	4.0	3.0	04/03/72	1015	MEC
0067	0073	64	FORD	FALCO	200	1	0	6	1	2750	10.9	64026	14	0	0	1	0	84	72	30.20	700	D	42.0	15.0	0.6	04/11/72	1950	MEC
0008	0008	63	FORD	COURT	352	2	0	8	1	4000	13.2	99999	20	0	0	1	0	77	72	29.80	550	D	25.0	8.0	5.5	03/27/72	1005	MEC
0034	0037	63	FORD	GALAX	352	2	0	8	0	4000	12.0	99999	20	0	0	1	0	86	78	30.03	700	N	28.0	6.0	6.0	04/03/72	1600	MEC
0146	0156	63	FORD	GALAX	289	2	0	8	0	4000	12.0	68627	20	0	0	1	0	86	75	30.03	625	D	29.0	4.0	5.6	05/02/72	1640	MEC
0170	0180	63	FORD	FALCO	260	2	0	8	1	3850	11.3	55519	14	0	0	1	0	82	72	30.00	575	D	30.0	5.0	8.5	05/07/72	0720	MEC
0009	0009	62	FORD	GALAX	352	2	0	8	1	4000	13.2	62484	0	0	0	0	0	85	74	29.80	575	D	34.0	8.0	6.0	03/27/72	1215	MEC
010C	0108	61	FORD	FALCO	170	1	3	6	0	2500	9.4	99999	14	0	0	0	0	80	75	30.00	740	N	34.0	3.0	5.6	04/20/72	0730	MEC
0036	0039	59	FORD	FAIRL	292	2	3	8	0	4000	12.0	93950	20	0	0	0	0	68	69	30.19	670	N	33.0	6.0	4.1	04/04/72	0745	MEC
0167	0177	59	FORD	EDSEL	292	2	0	8	0	4000	12.0	93057	20	0	0	0	0	86	75	30.15	500	D	25.0	0.0	4.7	05/07/72	1730	MEC
0157	0167	58	FORD	FAIRL	292	2	0	8	0	3500	11.2	99999	20	0	0	0	0	74	61	30.16	610	D	28.0	4.0	0.4	05/05/72	0700	MEC
0039	0042	57	FORD	THUND	312	4	0	8	0	3900	11.2	88197	20	0	0	0	0	54	69	30.29	700	D	22.0	9.0	2.5	04/04/72	1530	MEC
0039	0046R	57	FORD	THUND	312	4	0	8	0	3500	11.2	88235	20	0	0	0	0	86	75	30.17	700	D	22.0	9.0	2.5	04/05/72	1150	MEC
0018	0018	70	LINC	CONTI	460	4	0	8	1	5000	14.7	32158	26	0	3	1	0	68	57	29.93	650	D	32.0	6.0	4.7	03/29/72	1005	MEC
0114	0124	66	LINC	CONTI	462	4	0	8	1	5500	15.8	46697	26	0	0	1	0	83	67	30.15	640	N	20.0	10.0	1.4	04/25/72	1130	MEC
0051	0056	71	MERC	MARJO	429	2	0	8	1	4500	14.0	7620	24	1	1	1	0	86	75	29.82	570	D	31.0	10.0	4.8	04/07/72	1300	MEC
0140	0150	71	MERC	MONTE	351	2	0	8	1	4500	14.0	9889	25	1	1	1	0	86	75	30.06	650	D	35.0	-2.0	1.4	05/01/72	1530	MEC
0002	0002	70	MERC	CYCLO	351	4	0	8	1	4000	13.2	36061	20	0	1	1	0	78	72	29.86	575	D	30.0	-8.0	1.0	03/24/72	1715	MEC
0020	0021	63	MERC	MONTE	302	2	0	8	1	3500	12.3	43844	20	0	1	1	0	69	58	29.86	550	D	30.0	4.0	4.4	03/30/72	0845	MEC
0083	0091	64	MERC	COMET	289	2	3	8	1	3800	11.3	72189	20	0	0	1	0	86	74	29.90	700	N	31.0	4.0	5.5	04/15/72	1400	MEC
0151	0161	71	OLDS	CUTLA	350	2	0	8	1	4000	13.2	21736	20	1	1	1	0	86	75	30.08	620	D	27.4	4.0	1.5	05/03/72	1640	MEC
0062	0068	70	OLDS	CUTLA	350	2	0	8	1	4000	13.2	31919	20	0	1	1	0	84	72	30.14	570	D	33.0	2.0	5.9	04/10/72	1900	MEC
0120	0130	70	OLDS	NINET	455	4	0	8	1	4500	14.0	36173	25	0	1	1	0	86	75	30.10	580	D	31.0	2.0	4.5	04/26/72	1530	MEC
0128	0138	70	OLDS	442	455	4	0	8	1	4000	13.2	44403	20	0	1	1	0	80	72	30.02	600	D	32.0	8.0	0.4	04/26/72	0905	MEC
0064	0070	69	OLDS	VISTA	350	2	0	8	1	4500	14.0	53744	20	0	1	1	0	84	75	30.20	670	D	24.0	8.0	5.7	04/11/72	1030	MEC
0066	0072	68	OLDS	CUTLA	350	2	0	8	1	4000	13.2	53024	20	0	1	1	0	85	75	30.10	630	D	27.0	10.0	4.1	04/11/72	1645	MEC
0073	0079	68	OLDS	NINET	455	4	0	8	1	4500	14.0	70524	25	0	1	1	0	84	72	29.88	650	D	31.0	-0.0	0.1	04/13/72	0740	MEC
0027	0029	66	OLDS	CUTLA	330	2	0	8	1	3500	12.3	46975	20	0	0	1	0	69	58	30.17	650	D	29.0	0.0	1.5	04/01/72	0730	MEC
0074	0080	66	OLDS	NINET	425	4	0	8	1	4500	14.0	88497	25	0	0	1	0	84	75	29.87	400	D	30.0	7.0	3.8	04/13/72	0930	MEC
0019	0020	65	OLDS	JETST	330	4	0	8	0	4000	12.0	46043	25	0	0	1	0	81	71	29.93	600	D	28.0	5.0	1.6	03/29/72	1530	MEC
0071	0077	64	OLDS	NINET	394	4	0	8	1	4500	14.0	46817	21	0	0	1	0	86	75	30.00	500	D	27.0	-3.0	5.8	04/12/72	1440	MEC
0071	0081R	64	OLDS	NINET	394	4	0	8	1	4500	14.0	46817	21	0	0	1	0	69	75	29.87	500	D	27.0	-3.0	5.8	04/13/72	1400	MEC
0148	0158	71	PLYM	CUSTO	383	2	0	8	1	4500	14.0	5763	26	1	1	1	0	84	73	30.05	750	D	27.4	15.0	5.3	05/03/72	0950	MEC
0070	0076	70	PLYM	BELVE	318	2	3	8	1	3500	12.3	60244	19	0	1	1	0	86	75	30.00	660	N	32.0	-0.0	3.7	04/12/72	1150	MEC
0076	0084	69	PLYM	FURY	318	2	0	8	1	4000	13.2	66454	24	0	1	1	0	77	73	29.79	680	D	31.0	7.0	0.2	04/14/72	0755	MEC
0115	0125	69	PLYM	ROADR	383	4	0	8	1	4000	13.2	27748	19	0	1	1	0	86	73	30.12	650	N	25.0	5.0	4.5	04/25/72	1430	MEC
0102	0110	68	PLYM	FURY	318	2	0	8	1	4000	13.2	75373	24	0	1	1	0	84	75	29.97	550	D	30.0	0.0	4.3	04/20/72	1315	MEC
0144	0154	63	PLYM	SATTE	383	4	0	8	1	3500	12.3	57917	19	0	1	1	0	86	73	30.00	670	D	28.5	20.0	8.5	05/02/72	1130	MEC
0156	0166	67	PLYM	VALIA	225	1	3	6	0	3200	10.3	74002	18	0	0	1	0	86	75	30.25	800	N	35.0	6.0	5.6	05/04/72	1730	MEC
0043	0053	66	PLYM	BELVE	318	2	0	8	1	3500	12.3	65404	19	0	0	1	0	84	72	29.92	500	D	29.0	4.0	5.5	04/06/72	1845	MEC
0061	0067	65	PLYM	FURY	383	2	0	8	1	4000	13.2	87121	25	0	0	1	0	82	70	30.12	510	D	28.0	10.0	4.0	04/10/72	1700	MEC
0121	0131	63	PLYM	BELVE	318	2	0	8	1	3500	13.2	73146	20	0	0	1	0	76	70	30.02	670	D	37.0	1.0	5.7	04/27/72	0710	MEC
0113	0123	62	PLYM	SAVOY	225	1	0	8	1	3500	12.3	94382	20	0	0	1	0	78	64	30.15	700	D	50.0	2.0	4.4	04/25/72	0930	MEC
0127	0137	71	PONT	FIREB	350	2	0	8	1	3500	12.3	10454	18	1	1	1	0	77	70	30.02	550	D	26.0	6.0	0.4	04/23/72	0700	MEC
0164	0174	71	PONT	CATAL	350	2	0	8	1	4500	14.0	17703	25	1	1	1	0	84	70	30.04	600	D	32.0	9.0	4.8	05/05/72	0910	MEC
0134	0144	70	PONT	FIREB	350	2	0	8	1	3500	12.3	19853	19	0	1	1	0	86	75	30.04	620	D	34.0	6.0	5.7	04/29/72	1330	MEC
0129	0139	69	PONT	CATAL	400	2	0	8	1	4500	14.0	27308	26	0	1	1	0	84	72	30.01	650	D	36.0	6.0	1.8	04/28/72	1330	MEC
0154	0164	69	PONT	CATAL	400	2	0	8	1	4500	14.0	51041	26	0	1	1	0	86	75	30.25	645	D	29.0	4.0	3.8	05/04/72	1245	MEC
0004	0006	68	PONT	GTO	400	4	0	8	1	4000	13.2	56324	22	0	1	1	0	81	64	30.04	650	D	26.5	12.0	0.7	03/25/72	1730	MEC

CAR#	RUN#	YR	MAKE	MODEL	CID	BLK	TRN	CYL	A/C	INRT	RDHP	ODOMR	FT	EVP	EXH	EPV	PCV	VTP	DB	WB	BAROM	IRPM	D/N	DVEL	IGNT	ICO	DATE	TIME	PIC
0110	0119	68	PONT	GTO	400	4	4	8	1	4000	13.2	86747	22	0	1	1	0		83	67	30.08	700	N	30.0	12.0	6.0	04/24/72	0930	MEC
0031	0034	67	PONT	TEMPE	326	2	3	8	1	4000	13.2	62982	22	0	0	1	0		73	67	29.99	670	N	28.0	10.0	8.0	04/03/72	0745	MEC
0094	0102	66	PONT	BONNE	389	4	0	8	1	4500	14.0	78106	26	0	0	1	0		86	74	30.15	550	D	28.0	10.0	4.3	04/18/72	1530	MEC
0130	0140	65	PONT	GRAND	389	4	0	8	1	4000	13.2	64769	26	0	0	1	0		86	75	30.01	450	D	31.0	3.0	0.2	04/28/72	1530	MEC
0132	0142	65	PONT	CATAL	389	4	0	8	1	4500	14.0	83551	26	0	0	1	0		79	72	30.04	650	D	30.0	6.0	2.3	04/29/72	0730	MEC
0162	0172	64	PONT	CATAL	389	2	0	8	1	4000	13.2	99999	25	0	0	1	0		84	72	30.14	600	D	29.0	6.0	4.2	05/05/72	1800	MEC
0139	0149	62	PONT	CATAL	389	2	0	8	1	4000	13.2	45441	25	0	0	0	0		84	74	30.06	600	D	30.0	-1.0	1.4	05/01/72	1330	MEC
0049	0054	64	RAMB	CLASS	196	1	0	6	0	3000	10.3	99999	19	0	0	1	0		77	72	29.82	510	D	27.0	11.0	5.6	04/07/72	0745	MEC
0033	0036	63	RAMB	CLASS	196	1	0	6	1	3000	11.3	99999	19	0	0	0	0		80	75	30.02	620	D	33.0	6.0	1.1	04/03/72	1330	MEC
0161	0171	62	RAMB	CLASS	196	1	3	6	1	3500	12.3	74160	20	0	0	1	0		84	73	30.21	570	N	32.0	2.0	2.5	05/05/72	1600	MEC
0165	0175	59	STUD	LARK	170	1	3	6	0	3000	10.3	99999	18	0	0	0	0		86	75	30.15	1100	N	37.0	16.0	2.5	05/06/72	1320	MEC
0119	0129	70	VOLK	BEETL	097	1	4	4	0	2000	8.3	18090	11	0	1	1	0		86	74	30.10	900	N	56.0	0.0	0.8	04/26/72	1340	MEC
0077	0085	69	VOLK	BEETL	091	1	0	4	0	2000	8.3	37199	11	0	1	1	0		83	75	29.74	630	D	37.0	30.0	1.9	04/14/72	0955	MEC
0101	0109	69	VOLK	BEETL	091	1	4	4	0	2000	8.3	15810	11	0	1	1	0		80	75	30.00	600	N	52.0	-0.3	4.7	04/20/72	0930	MEC
0093	0101	68	VOLK	BEETL	091	1	4	4	0	2000	8.3	31331	11	0	0	1	0		82	73	30.09	900	N	50.0	22.0	3.4	04/19/72	1315	MEC
0026	0028	67	VOLK	BEETL	091	1	4	4	0	2000	8.3	64907	12	0	0	1	0		68	56	30.00	1200	N	43.0	12.0	2.7	03/31/72	1515	MEC
0026	00308	67	VOLK	BEETL	091	1	4	4	0	2000	8.3	64907	12	0	0	1	0		68	58	30.22	1200	N	45.0	12.0	2.7	04/01/72	0920	MEC
0124	0134	67	VOLK	BEETL	091	1	4	4	1	2000	9.1	99999	11	0	0	1	0		70	66	30.00	1000	N	41.0	11.0	8.5	04/27/72	1400	MEC
0111	0120	66	VOLK	BEETL	078	1	4	4	0	2000	8.3	81958	11	0	0	1	0		84	74	30.10	600	N	33.0	11.0	5.6	04/24/72	1330	MEC
0138	0148	66	VOLK	BEETL	078	1	4	4	0	2000	8.3	80489	11	0	0	1	0		48	90	0.00	1060	N	56.0	10.0	6.0	05/01/72	0950	MEC
0133	0143	65	VOLK	BEETL	078	1	4	4	0	2000	8.3	99999	10	0	0	1	0		83	74	30.04	900	N	46.0	7.0	6.0	04/29/72	1130	MEC
0025	0027	64	VOLK	BEETL	073	1	4	4	0	2000	8.3	74395	10	0	0	1	0		72	56	30.06	650	N	33.0	5.0	5.2	03/31/72	1030	MEC
0017	0017	63	VOLK	SQUAR	073	1	4	4	0	2250	8.8	87983	10	0	0	1	0		68	57	29.93	900	N	44.0	7.0	0.7	03/29/72	0805	MEC
0092	0100	62	VOLK	BEETL	073	1	4	4	0	2000	8.3	77069	11	0	0	0	0		83	73	30.13	620	N	36.0	7.0	3.0	04/19/72	1035	MEC
0056	0062	71	MISC	OPEL	116	1	0	4	1	2500	10.3	13129	12	1	1	1	0		86	75	30.07	800	D	45.0	5.0	4.4	04/08/72	1500	MEC
0171	0181	71	MISC	DATSU	097	2	4	4	1	2500	10.3	35000	15	1	1	1	0		86	75	30.06	975	N	52.0	10.0	0.8	05/08/72	1700	MEC
0068	0074	70	MISC	DATSU	097	2	0	4	1	2250	9.7	20815	12	0	3	1	0		77	73	30.00	630	D	55.0	8.0	2.3	04/12/72	0800	MEC
0085	0093	69	MISC	TOYOT	116	2	4	4	1	2500	10.3	20465	13	0	1	1	0		82	72	29.90	1050	N	51.0	8.0	0.2	04/15/72	1830	MEC
0069	0075	68	MISC	TOYOT	116	2	0	4	0	2500	10.3	33628	11	0	3	1	0		84	75	30.00	700	D	51.0	7.0	0.9	04/12/72	0950	MEC

CAR#	RUN#	YR	MAKE	MODEL	CID	JB	TR	CN	AL	C	INRT	RDHP	ODOMR	FT	EVP	EXH	EPC V	VTP	DB	WB	BAROM	IRPM	D/N	DWEL	IGNT	ICO	DATE	TIME	PIC
0066	0066	71	BUIC	LESAB	350	2	0	8	1		4500	14.0	19810	25	1	1	1	0	72	56	29.72	620	D	29.0	2.0	6.3	04/27/72	0600	WJB
0064	0064	70	BUIC	SKYLA	350	2	0	8	1		3500	12.3	23119	20	0	1	1	0	69	53	29.60	560	D	28.0	5.0	1.0	04/26/72	0155	SWS
0029	0029	69	BUIC	ELECT	430	4	0	8	1		4500	14.0	34523	25	0	1	1	0	70	62	29.16	480	D	36.0	2.0	3.4	04/21/72	0220	SWS
0065	0065	67	BUIC	RIVIE	430	4	0	8	1		4500	14.0	58445	21	0	0	1	0	69	53	29.60	480	D	32.0	5.0	1.5	04/26/72	0400	SWS
0150	0156	67	BUIC	SPECI	225	1	0	6	1		3500	12.3	61854	20	0	0	1	0	70	61	29.33	640	D	36.0	-2.0	7.5	05/03/72	0700	SWS
0048	0048	66	BUIC	SPECI	300	2	0	8	0		3500	11.2	57520	20	0	0	1	0	69	59	29.73	410	D	26.0	2.0	1.5	04/25/72	0730	WJB
0056	0056	66	BUIC	WILDC	425	4	0	8	1		4500	14.0	81378	25	0	0	1	0	71	55	29.69	530	D	23.0	0.0	6.3	04/26/72	0545	WJB
0024	0024	65	BUIC	RIVIE	425	4	0	8	1		4500	14.0	33557	20	0	0	1	0	75	66	29.08	550	D	27.0	5.0	5.9	04/21/72	1235	WJB
0104	0104	64	BUIC	WILDC	425	4	0	8	1		4500	14.0	99999	20	0	0	1	0	69	60	29.24	600	D	24.0	10.0	7.0	05/01/72	0120	WJB
0128	0133	61	BUIC	LESAB	364	4	0	8	0		4500	12.7	12517	20	0	0	0	0	70	59	29.55	540	D	35.0	12.0	7.4	05/04/72	2310	WJB
0135	0141	71	CADI	DEVIL	472	4	0	8	1		5000	14.7	10568	26	1	1	1	0	83	65	29.59	710	D	30.0	10.0	0.6	05/05/72	1600	SWS
0113	0113	67	CADI	DEVIL	429	4	0	8	1		5000	14.7	48128	26	0	0	1	0	70	56	29.27	560	D	29.0	5.0	6.0	05/02/72	2105	WJB
0113	0113R	67	CADI	DEVIL	429	4	0	8	1		5000	14.7	48164	26	0	0	1	0	69	59	29.33	560	D	29.0	5.0	4.8	05/03/72	1130	SWS
0110	0110	64	CADI	DEVIL	429	4	0	8	1		5000	14.7	89871	26	0	0	1	0	69	58	29.28	620	D	26.0	2.0	3.2	05/02/72	1405	SWS
0003	0003	71	CHEV	CAPRI	400	4	0	8	1		4000	13.2	11889	24	1	1	1	0	80	69	29.32	625	D	28.0	12.0	2.1	04/19/72	1045	WJB
0004	0004	71	CHEV	IMPAL	350	2	0	8	0		4000	12.0	11232	20	1	1	1	0	83	70	29.33	560	D	31.0	5.0	10.3	04/19/72	1255	WJB
0055	0055	71	CHEV	VEGA	140	2	0	4	0		2500	9.4	7848	11	1	1	1	0	70	56	29.63	700	D	21.0	10.0	2.7	04/25/72	0435	SWS
0077	0077	71	CHEV	VEGA	140	1	4	4	1		2500	10.3	12299	11	1	1	1	0	71	55	29.69	800	N	46.0	4.0	1.4	04/28/72	0805	WJB
0105	0105	71	CHEV	IMPAL	350	2	0	8	1		4500	14.0	13509	24	1	1	1	0	69	61	29.26	660	D	26.0	2.0	0.2	05/01/72	0325	WJB
0028	0028	70	CHEV	CHEVE	250	1	0	6	1		3500	12.3	10933	20	0	1	1	0	70	62	29.17	590	D	34.0	0.0	7.3	04/21/72	0015	SWS
0084	0084	70	CHEV	MALIB	307	2	0	8	1		3500	12.3	32640	20	0	1	1	0	69	59	29.52	460	D	27.0	7.0	8.5	04/28/72	0200	SWS
0120	0123	70	CHEV	MALIB	307	2	0	8	1		3500	12.3	31827	20	0	1	1	0	70	57	29.31	375	D	29.0	8.0	3.4	05/03/72	2300	WJB
0140	0146	70	CHEV	IMPAL	350	2	0	8	1		4000	13.2	24129	24	0	1	1	0	68	60	29.50	510	D	28.0	4.0	3.6	05/05/72	0315	WJB
0007	0007	69	CHEV	BELAI	327	2	0	8	1		4000	13.2	41327	24	0	1	1	0	68	64	29.33	540	D	29.0	3.0	2.9	04/19/72	2150	SWS
0073	0073	69	CHEV	PKUP	350	2	3	8	0		4000	12.0	23716	20	0	3	1	0	70	55	29.64	660	N	30.0	4.0	1.0	04/27/72	0300	SWS
0086	0086	69	CHEV	IMPAL	350	4	0	8	1		4000	13.2	31340	24	0	1	1	0	71	61	29.54	420	D	28.0	2.0	7.6	04/29/72	0555	WJB
0089	0089	69	CHEV	CORVE	427	4	4	8	0		3500	11.2	23202	20	0	3	1	0	76	64	29.55	790	N	25.0	2.0	7.6	04/29/72	1200	WJB
0087	0087	68	CHEV	IMPAL	327	4	0	8	1		4000	13.2	47190	24	0	1	1	0	68	64	29.52	480	D	29.0	2.0	5.5	04/29/72	0800	WJB
0103	0103	68	CHEV	NOVA	230	1	0	6	0		3000	10.3	63405	16	0	0	1	0	70	61	29.21	600	D	30.0	3.0	1.1	05/01/72	2225	WJB
0131	0136	68	CHEV	IMPAL	307	2	0	8	1		4000	13.2	46680	24	0	1	1	0	78	62	29.59	610	D	27.0	9.0	4.7	05/05/72	0615	SWS
0067	0067	67	CHEV	BELAI	283	2	0	8	0		4000	12.0	44454	24	0	0	1	0	69	55	29.67	560	D	23.0	10.0	3.8	04/27/72	0805	WJB
0085	0085	67	CHEV	CAPRI	327	2	0	8	1		4000	13.2	40352	24	0	0	1	0	67	57	29.52	540	D	22.0	8.0	5.6	04/23/72	0355	SWS
0095	0095	67	CHEV	IMPAL	327	4	0	8	1		4000	13.2	57932	24	0	0	1	0	71	60	29.55	600	D	23.0	4.0	5.8	04/29/72	0400	SWS
0014	0014	66	CHEV	IMPAL	283	2	0	8	1		4000	13.2	49331	20	0	0	1	0	69	66	29.42	650	N	25.0	0.0	7.1	04/20/72	1320	WJB
0068	0068	66	CHEV	CHEVE	396	4	4	8	0		3500	11.2	72097	20	0	0	1	0	71	55	29.68	995	N	30.0	-4.0	5.8	04/27/72	1005	WJB
0141	0147	66	CHEV	BELAI	427	2	0	8	1		3500	12.3	76011	20	0	0	1	0	73	60	29.50	530	D	30.0	12.0	6.9	05/06/72	0600	SWS
0006	0006	65	CHEV	IMPAL	396	4	0	8	1		4000	13.2	77104	20	0	0	1	0	70	64	29.25	640	D	25.0	0.0	2.4	04/19/72	2000	SWS
0054	0054	65	CHEV	MALIB	283	2	0	8	0		3500	11.2	72800	20	0	0	1	0	70	54	29.65	600	D	32.0	20.0	10.8	04/25/72	0205	SWS
0072	0072	65	CHEV	IMPAL	283	2	0	8	1		4000	13.2	29999	20	0	0	1	0	69	53	29.55	400	D	15.0	1.0	10.4	05/27/72	2200	SWS
0018	0018	64	CHEV	BELAI	283	2	3	8	0		3500	11.2	84262	20	0	0	1	0	71	60	29.37	760	N	29.0	0.0	0.8	04/20/72	0015	SWS
0070	0070	64	CHEV	BELAI	283	2	3	8	0		3500	11.2	71763	20	0	0	1	0	72	56	29.67	620	N	30.0	0.0	2.6	04/27/72	1430	WJB
0092	0092	64	CHEV	BELAI	283	2	0	8	0		3500	11.2	55131	20	0	0	1	0	72	62	29.51	440	D	25.0	5.0	1.8	04/29/72	2200	SWS
0063	0063	63	CHEV	NOVA	194	1	3	6	0		2750	9.9	99133	16	0	0	1	0	70	57	29.60	480	N	30.0	8.0	8.7	04/25/72	2355	SWS
0102	0102	63	CHEV	NOVA	194	1	3	6	0		3000	10.3	57605	16	0	0	1	0	73	63	29.21	980	N	33.0	4.0	6.2	05/01/72	2030	WJB
0107	0107	63	CHEV	CORVA	140	2	4	4	0		2750	9.9	48732	14	0	0	0	0	72	56	29.20	620	N	33.0	-1.0	7.1	05/02/72	0815	SWS
0116	0116	63	CHEV	CHEVY	194	1	0	6	0		3000	10.3	60017	16	0	0	1	0	75	60	29.20	510	D	29.0	2.0	5.1	05/03/72	0600	SWS
0008	0008	62	CHEV	IMPAL	283	2	0	8	0		4000	12.0	51842	20	0	0	0	0	81	69	29.36	460	D	25.0	6.0	3.6	04/19/72	0025	SWS
0057	0057	62	CHEV	NOVA	194	1	0	6	0		2750	9.9	98408	16	0	0	1	0	69	56	29.04	450	D	31.0	-2.0	9.2	04/26/72	0800	WJB
0039	0039	61	CHEV	BISCA	235	1	3	6	0		4000	12.0	29791	20	0	0	0	0	69	58	29.31	800	N	38.0	-2.0	6.0	04/23/72	0210	SWS
0045	0045	61	CHEV	BELAI	235	1	0	6	0		4000	12.0	36578	20	0	0	0	0	69	58	29.69	580	D	24.0	3.0	1.1	04/24/72	2230	SWS

CAR#	RUN#	YR	MAKE	MODEL	CID	BBL	TRN	CYL	A/C	INRT	RDHP	ODOMR	FT	EVP	EXH	EVC	VTP	DB	WB	BARO	IRPM	D/N	DWEL	IGNT	IGO	DATE	TIME	PIC
0071	0071	60	CHEV	BISCA	235	1	3	6	0	4000	12.0	84541	20	0	0	0	0	69	54	29.55	540	N	37.0	4.0	3.5	05/27/72	2000	SWS
0115	0115	59	CHEV	BELAI	235	1	0	6	0	4000	12.0	72060	20	0	0	0	0	69	54	29.31	500	D	31.0	5.0	7.8	05/02/72	0130	WJB
0164	0171	58	CHEV	BELAI	235	1	3	6	0	3500	11.2	18887	20	0	0	0	0	69	62	29.48	560	N	32.0	2.0	5.6	05/09/72	1500	SWS
0127	0132	57	CHEV	APACH	235	1	3	6	0	3500	11.2	97057	20	0	0	0	0	76	61	29.51	775	N	22.0	7.0	5.5	05/04/72	2100	WJB
0154	0161	57	CHEV	BELAI	283	2	0	8	0	3500	11.2	76846	20	0	0	0	0	68	59	29.31	610	D	29.0	4.0	3.4	05/08/72	1910	WJB
0020	0020	70	CHRY	NEWPO	383	2	0	8	1	4500	14.0	26915	24	0	1	1	0	70	59	29.27	530	D	35.0	2.0	4.6	04/20/72	0425	SWS
0042	0042	68	CHRY	300	440	4	0	8	1	4500	14.0	58783	25	0	1	1	0	70	59	29.52	450	D	23.0	0.0	4.1	04/24/72	1610	SWS
0169	0177	66	CHRY	NEWPO	383	4	0	8	1	4500	14.0	69392	25	0	0	1	0	68	57	29.52	660	D	27.0	10.0	6.3	05/10/72	0155	WJB
0075	0075	63	CHRY	NEWPO	383	2	0	8	1	4000	13.2	83056	23	0	0	1	0	71	56	29.60	580	D	36.0	3.0	5.7	04/27/72	0355	SWS
0081	0081	71	DODG	CHARG	318	2	0	8	1	3500	12.3	21999	21	1	1	1	0	69	64	29.50	640	D	24.0	10.0	5.4	04/28/72	2000	SWT
0076	0076	70	DODG	POLAR	313	2	0	8	1	4000	13.2	74994	24	0	1	1	0	72	53	29.59	730	D	23.0	-1.0	3.7	05/28/72	0550	WJB
0083	0083	68	DODG	CHARG	383	2	0	8	1	3500	12.3	75865	19	0	1	1	0	69	57	29.54	580	D	30.0	4.0	2.6	04/29/72	0010	SWS
0117	0117	68	DODG	POLAR	383	2	0	8	1	4500	14.0	44566	24	0	1	1	0	73	61	29.35	480	D	30.0	0.0	1.1	05/03/72	0955	SWS
0117	0125R	68	DODG	POLAR	383	2	0	8	1	4500	14.0	44592	24	0	1	1	0	73	61	29.35	540	D	30.0	0.0	1.4	05/03/72	0310	WJB
0139	0145	67	DODG	CHARG	383	4	0	8	1	4000	13.2	44978	19	0	0	1	0	71	61	29.57	575	D	31.0	12.0	3.9	05/05/72	0110	WJB
0133	0138	66	DODG	CORON	225	1	0	8	0	3500	11.2	60114	19	0	0	1	0	72	59	29.64	700	D	41.0	3.0	2.0	05/05/72	1025	SWS
0145	0151	66	DODG	CORON	318	2	0	8	0	3500	11.2	62574	19	0	0	1	0	84	67	29.43	640	D	29.0	12.0	6.4	05/06/72	0215	SWS
0123	0127	64	DODG	VAN	225	1	3	6	0	3000	10.3	58997	18	0	0	1	0	71	58	29.52	590	N	41.0	3.0	9.8	05/04/72	0800	SWS
0033	0033	63	DODG	DART	225	2	3	6	0	3000	10.3	76055	18	0	0	1	0	69	57	29.27	680	N	21.0	5.0	6.7	04/22/72	1915	WJB
0047	0047	63	DODG	330	361	2	0	8	0	3500	11.2	72912	20	0	0	1	0	84	66	29.72	680	D	25.0	0.0	2.0	04/25/72	0535	WJB
0147	0153	62	DODG	DART	225	1	3	6	0	3500	11.2	60392	20	0	0	0	0	85	64	29.47	700	N	30.0	2.0	9.7	05/06/72	2055	WJB
0111	0111	59	DODG	CORON	326	2	0	8	0	4000	12.0	50282	20	0	0	0	0	72	58	29.26	540	D	31.0	10.0	3.8	05/02/72	1650	WJB
0111	0122R	59	DODG	CORON	326	2	0	8	0	4000	12.0	50307	20	0	0	0	0	71	58	29.31	540	D	31.0	10.0	3.6	05/03/72	2100	WJB
0021	0021	71	FORD	COUNT	351	2	0	8	1	4500	14.0	18176	25	1	1	1	0	71	63	29.16	540	D	31.0	2.0	1.1	04/21/72	0615	WJB
0027	0027	71	FORD	MAVER	200	1	0	6	0	2750	9.9	8500	16	1	1	1	0	74	62	29.13	460	D	34.0	2.0	9.5	04/21/72	2210	SWS
0040	0040	71	FORD	LTD	400	2	0	8	1	4500	14.0	11068	25	1	1	1	0	70	60	29.38	680	D	27.0	4.0	1.0	04/23/72	0415	SWS
0052	0052	71	FORD	MAVER	200	1	0	6	0	2750	9.9	19229	16	1	1	1	0	71	53	29.65	580	D	32.0	6.0	2.2	04/25/72	2200	SWS
0079	0079	71	FORD	RANCH	351	2	0	8	0	4500	12.7	16028	22	1	1	1	0	69	65	29.57	480	D	34.0	0.0	4.9	04/23/72	1200	WJB
0002	0002	70	FORD	MAVER	170	1	3	6	0	2750	9.9	15273	16	0	1	1	0	75	64	29.31	750	N	51.0	10.0	.1	04/19/72	0330	WJB
0010	0010	70	FORD	MAVER	250	1	0	6	1	2750	10.9	10967	16	0	1	1	0	68	64	29.35	490	D	36.0	2.0	3.6	04/19/72	0445	SWS
0013	0013	70	FORD	COUNT	390	2	0	8	1	4500	14.0	31757	25	0	1	1	0	63	65	29.40	520	D	28.0	9.0	4.7	04/20/72	1115	WJB
0032	0032	69	FORD	LTDXX	351	2	0	8	1	4500	13.2	38581	25	0	1	1	0	70	57	29.25	530	D	31.0	5.0	5.6	04/22/72	0915	WJB
0058	0058	69	FORD	FUTUR	200	1	0	6	0	3000	10.3	40452	16	0	1	1	0	69	54	29.68	600	D	37.0	-2.0	2.9	04/26/72	1010	WJB
0119	0121	69	FORD	FAIRL	302	2	0	8	0	3500	11.2	38972	20	0	1	1	0	69	58	29.31	700	D	27.0	5.0	1.6	05/03/72	1900	WJB
0060	0060	68	FORD	FAIRL	302	2	0	8	0	3500	11.2	42500	20	0	1	1	0	71	53	29.72	520	D	35.0	2.0	2.5	04/26/72	1415	WJB
0094	0094	68	FORD	MUSTA	200	1	3	6	0	3000	10.3	39787	16	0	1	1	0	72	61	29.54	700	N	46.0	6.0	1.4	04/29/72	0200	SWS
0114	0114	68	FORD	LTD	390	2	0	8	1	4000	13.2	55649	25	0	1	1	0	69	55	29.29	600	D	25.0	6.0	1.0	05/02/72	2300	WJB
0114	0124GR	68	FORD	LTD	390	2	0	8	1	4000	13.2	55694	25	0	1	1	0	70	61	29.33	600	D	25.0	6.0	1.5	05/03/72	1400	SWS
0121	0124	67	FORD	CUSTO	289	2	0	8	0	4000	12.0	55334	25	0	0	1	0	69	58	29.35	500	D	27.0	6.0	5.6	05/03/72	0100	WJB
0121	0130R	67	FORD	CUSTO	289	2	0	8	0	4000	12.0	55360	25	0	0	1	0	73	60	29.48	500	D	26.0	8.0	5.5	05/04/72	1620	SWS
0001	0001	66	FORD	LTD	390	4	0	8	1	4000	13.2	18799	20	0	0	1	0	76	62	29.27	540	D	35.0	6.0	5.9	04/19/72	0500	WJB
0046	0046	66	FORD	MUSTA	200	1	0	6	0	3000	10.3	87042	16	0	0	1	0	69	60	29.67	620	D	23.0	8.0	3.3	04/24/72	0025	SWS
0097	0097	66	FORD	MUSTA	200	1	3	6	0	2750	9.9	57399	16	0	0	1	0	70	61	29.24	750	N	39.0	9.0	.9	05/01/72	0700	SWS
0136	0142	66	FORD	STANA	240	2	3	6	0	4500	12.7	79226	25	0	0	1	0	82	66	29.57	900	N	35.0	0.0	0.8	05/05/72	1920	WJB
0037	0037	65	FORD	MUSTA	200	1	3	6	0	2750	9.9	72226	16	0	0	1	0	70	60	29.22	780	N	39.0	4.0	2.5	04/22/72	2205	SWS
0050	0050	65	FORD	MUSTA	200	1	3	6	0	3000	10.3	80083	16	0	0	1	0	70	58	29.73	640	N	33.0	0.0	2.8	24/25/72	1150	WJB
0100	0100	65	FORD	GALAX	352	2	0	8	1	4000	13.2	50478	20	0	0	1	0	71	61	29.26	520	D	30.0	0.0	.5	05/01/72	1300	SWS
0069	0069	64	FORD	GALAX	289	2	0	8	0	4000	12.0	70648	20	0	0	1	0	71	54	29.67	550	D	29.0	2.0	8.5	04/27/72	1215	WJB
0093	0093	64	FORD	CUSTO	352	4	0	8	1	4000	13.2	76365	20	0	0	1	0	73	62	29.58	600	D	24.0	5.0	6.1	04/29/72	0010	SWS
0078	0078	63	FORD	FAIRL	260	2	3	8	0	3500	11.2	19493	16	0	0	1	0	70	62	29.50	780	N	26.0	-2.0	10.1	04/28/72	1005	WJB

CAR#	RUN#	YR	MAKE	MODEL	CID	BB L	TR N	CV L	A/C	INRT	ODOM	ODOMR	FT	EVP	EXH	EPCV	VTP	DB	WB	BAROM	IRPM	D/N	DWEL	IGNT	ICO	DATE	TIME	PIC
0098	0098	63	FORD	FALCO	170	1	3	6	0	2750	9.9	99999	14	0	0	1	0	62	59	29.31	820	N	38.0	6.0	7.?	05/01/72	0900	SWS
0156	0163	63	FORD	STANA	390	2	0	8	0	4500	12.7	62519	20	0	0	1	0	68	62	29.32	500	D	28.0	6.0	4.9	05/08/72	2310	WJB
0011	0011	62	FORD	FAIRL	292	2	0	8	0	3500	11.2	93275	16	0	0	0	0	70	65	29.37	600	D	24.0	4.0	10.9	01/20/72	0700	WJB
0016	0016	62	FORD	FAIRL	170	1	3	6	0	3000	10.3	99999	16	0	0	0	0	72	60	29.34	780	N	38.0	4.0	9.6	04/20/72	2030	SWS
0129	0134	61	FORD	FALCO	170	2	0	6	0	2500	9.4	45463	14	0	0	0	0	69	58	29.57	540	D	37.0	6.0	1.3	05/05/72	0100	WJB
0144	0150	60	FORD	GALAX	352	4	0	8	1	4000	13.2	24225	20	0	0	0	0	82	66	29.51	460	D	27.0	1.0	4.9	05/06/72	1200	SWS
0170	0180	60	FORD	FIOO	292	2	3	8	0	3500	11.2	23191	20	0	0	0	0	71	57	29.66	720	N	27.0	5.0	3.2	05/10/72	1200	SWS
0009	0009	59	FORD	FAIRL	292	2	0	8	0	4000	12.0	65386	20	0	0	0	0	68	64	29.27	480	D	26.0	4.0	1.2	04/19/72	0340	SWS
0044	0044	59	FORD	THUND	352	4	0	8	0	4000	12.0	81834	20	0	0	0	0	70	69	29.65	525	D	25.0	4.0	5.9	04/24/72	2025	SWS
0146	0152	57	FORD	SKYLI	312	4	0	8	0	4000	12.0	93410	20	0	0	0	0	84	65	29.48	375	D	25.0	6.0	9.9	05/06/72	1850	WJB
0038	0038	71	MERC	COUGA	351	2	0	8	1	4000	13.2	24855	20	1	1	1	0	70	60	29.23	470	D	30.0	4.0	4.5	04/23/72	0015	SWS
0155	0162	70	MERC	MONTE	390	2	0	8	1	4000	13.2	46762	24	0	1	1	0	68	60	29.31	575	D	30.0	6.0	5.4	05/08/72	2110	WJB
0155	C172R	70	MERC	MONTE	390	2	0	8	1	4000	13.2	46799	24	0	1	1	0	69	61	29.47	575	D	30.0	6.0	5.2	05/09/72	0830	SWS
0034	0034	69	MERC	MONTE	390	2	0	8	1	4500	14.0	10833	24	0	1	1	0	69	58	29.25	530	D	32.0	8.0	3.9	04/22/72	1210	WJB
0165	0173	65	MERC	COUGA	302	2	0	8	1	3500	12.3	39955	16	0	0	1	0	69	61	29.51	560	D	32.0	8.0	2.0	05/09/72	1800	WJB
0165	0173R	65	MERC	COUGA	302	2	0	8	1	3500	12.3	39991	16	0	1	1	0	72	56	29.59	560	D	32.0	8.0	1.7	05/10/72	0800	SWS
0061	0061	67	MERC	COUGA	289	2	0	8	1	3500	12.3	47537	17	0	0	1	0	74	56	29.60	620	D	25.0	4.0	5.9	04/26/72	2000	SWS
0166	0174	66	MERC	COLGN	330	2	0	8	1	4500	14.0	53268	25	0	0	1	0	69	60	29.51	500	D	27.0	10.0	0.4	05/09/72	2300	WJB
0166	0174R	66	MERC	COLGN	390	2	0	8	1	4500	14.0	53305	25	0	0	1	0	71	56	29.61	500	D	27.0	10.0	0.3	05/10/72	0955	SWS
0168	0176	65	MERC	MONTE	390	2	0	8	1	4000	13.2	44320	21	0	0	1	0	69	59	29.52	550	D	25.0	10.0	9.3	05/09/72	1155	WJB
0112	0112	64	MERC	MONTE	427	4	0	8	1	4500	14.0	83730	20	0	0	1	0	72	58	29.25	520	D	32.0	6.0	3.6	05/02/72	1900	WJB
0091	0091	61	MERC	COMET	170	1	3	6	0	2750	9.9	51988	14	0	0	0	0	76	62	29.53	630	D	47.0	0.0	3.3	04/29/72	2000	SWS
0160	0167	60	MERC	COMET	170	1	3	6	0	2750	9.9	59192	14	0	0	0	0	69	59	29.33	1250	N	29.0	15.0	2.4	05/09/72	0710	SWS
0017	0017	71	OLDS	CUTLA	350	2	0	8	1	4000	13.2	18177	20	1	1	1	0	71	60	29.41	640	D	25.0	2.0	2.9	04/26/72	2230	SWS
0030	0030	71	OLDS	CUTLA	350	2	0	8	1	4000	13.2	27341	20	0	1	1	0	70	63	29.16	520	D	32.0	6.0	3.5	04/21/72	0430	SWS
0109	0109	70	OLDS	CUTLA	350	2	0	8	0	4000	12.0	12672	20	0	1	1	0	71	57	29.19	550	D	30.0	4.0	3.7	05/02/72	1150	SWS
0053	0053	69	OLDS	DELTA	455	2	0	8	1	4500	14.0	31995	25	0	1	1	0	70	54	29.65	575	D	20.0	5.0	6.5	04/25/72	0010	SWS
0080	0080	69	OLDS	VISTA	350	2	0	8	1	4500	14.0	50078	20	0	1	1	0	60	64	29.57	490	D	28.0	2.0	9.0	04/28/72	1400	WJB
0019	0019	68	OLDS	CUTLA	350	4	0	8	1	3500	12.3	46706	20	0	1	1	0	71	60	29.30	500	D	30.0	2.0	9.1	04/20/72	0230	SWS
0022	0022	67	OLDS	CUTLA	330	2	0	8	1	4000	13.2	53009	20	0	0	1	0	68	64	29.11	650	D	31.0	7.0	5.1	04/21/72	0615	WJB
0099	0099	66	OLDS	442	400	4	3	8	0	4000	12.0	81851	20	0	0	1	0	70	61	29.26	640	N	28.0	2.0	6.3	05/01/72	1100	SWS
0161	0168	66	OLDS	DYNAM	425	4	0	8	1	4500	14.0	45804	25	0	0	1	0	69	58	29.48	530	D	29.0	8.0	7.3	05/09/72	0255	SWS
0137	0143	65	OLDS	DYNAM	425	2	0	8	1	4500	14.0	60160	25	0	0	1	0	75	61	29.55	530	D	28.0	10.0	8.6	05/05/72	2120	WJB
0138	0144	63	OLDS	NINET	394	4	0	8	1	4500	14.0	85020	20	0	0	1	0	72	60	29.53	500	D	30.0	5.0	10.9	05/05/72	2315	WJB
0151	0157	62	OLDS	STARF	394	4	0	8	1	4500	14.0	46574	20	0	0	1	0	70	61	29.35	620	D	31.0	8.0	2.4	05/04/72	0915	SWS
0153	0160	61	OLDS	DYNAM	394	2	0	8	0	4500	12.7	79011	20	0	0	0	0	76	62	29.33	650	D	28.0	4.0	2.8	05/08/72	1605	SWS
0043	0043	71	PLYM	FURY3	318	2	0	8	1	4000	13.2	22652	24	1	1	1	0	69	59	29.59	640	D	22.0	8.0	2.2	04/24/72	1320	SWS
0035	0035	70	PLYM	SPORT	383	2	0	8	1	4500	14.0	19427	24	0	1	1	0	68	57	29.20	520	D	35.0	1.0	6.1	04/22/72	1425	WJB
0012	0012	69	PLYM	SATEL	318	2	0	8	1	3500	12.3	28422	19	0	1	1	0	69	65	29.40	640	D	30.0	2.0	8.4	04/20/72	0935	WJB
0025	0025	67	PLYM	FURY	383	2	3	8	1	4500	14.0	62919	25	0	0	1	0	70	66	29.07	600	N	29.0	1.0	6.2	04/21/72	1445	WJB
0122	0126	66	PLYM	FURY3	318	2	0	8	1	4000	13.2	58782	25	0	0	1	0	73	59	29.41	580	D	29.0	6.0	6.1	05/04/72	0600	SWS
0124	0128	65	PLYM	SPORT	383	4	0	8	1	4000	13.2	12102	25	0	0	1	0	73	59	29.49	440	D	25.0	20.0	4.4	05/04/72	1005	SWS
0134	0139	64	PLYM	VALIA	170	1	0	6	0	2750	9.9	63380	18	0	0	1	0	76	62	29.65	540	D	38.0	10.0	4.9	05/05/72	1200	SWS
0096	0096	63	PLYM	BELVE	225	1	3	6	0	3500	11.2	69070	20	0	0	1	0	74	63	29.29	720	N	38.0	4.0	5.0	05/01/72	0510	SWS
0118	0118	60	PLYM	FURY	361	4	3	8	0	4000	12.0	99999	20	0	0	0	0	69	62	29.35	730	N	38.0	0.0	6.6	05/03/72	0950	SWS
0149	0155	71	PONT	CATAL	400	2	0	8	1	4500	14.0	39276	24	1	1	1	0	72	64	29.47	620	D	29.0	12.0	5.0	05/06/72	0100	WJB
0158	0165	71	PONT	CATAL	400	2	0	8	1	4500	14.0	5630	24	1	1	1	0	69	63	29.37	525	D	30.0	12.0	7.1	05/08/72	0315	WJB
0005	0005	70	PONT	LEMAN	350	2	0	8	1	4000	13.2	19211	22	0	1	1	0	83	71	29.31	660	D	29.0	8.0	4.0	04/19/72	1500	WJB
0041	0041	69	PONT	GRAND	400	4	0	8	1	4000	13.2	48659	22	0	1	1	0	69	66	29.44	600	D	24.0	4.0	2.0	04/24/72	0600	WJB
0108	0108	69	PONT	CUSTO	350	2	0	8	1	3500	12.3	33613	22	0	1	1	0	73	58	29.20	550	D	30.0	2.0	6.2	05/02/72	1005	SWS

CAR#	RUN#	YR	MAKE	MODEL	CID	BBL	TRN	CYL	A/C	INRT	RDHP	ODOMR	FT	EVP	EXH	EVC	PCV	VTP	DB	WB	BAROM	IRPM	D/N	DWEL	IGNT	ICO	DATE	TIME	PIC
0049	0049	68	PONT	TEMPE	350	2	0	8	1	4000	13.2	22336	22	0	1	1	0		69	56	29.74	580	D	28.0	4.0	0.3	04/25/72	0945	WJB
0051	0051	68	PONT	FIREB	400	4	4	8	0	3500	11.2	29535	16	0	1	1	0		69	53	29.68	600	N	20.0	8.0	2.4	04/25/72	2000	SWS
0090	0090	68	PONT	EXECU	400	2	0	8	1	4500	14.0	38425	26	0	1	1	0		75	65	29.55	540	D	26.0	-2.0	4.7	04/29/73	1405	WJB
0125	0129	67	PONT	CATAL	400	2	0	8	0	4500	12.7	85515	26	0	0	1	0		71	69	29.48	495	D	26.0	15.0	7.2	05/04/72	1250	SWS
0142	0148	66	PONT	TEMPE	230	1	3	6	1	3500	12.3	48524	22	0	0	1	0		72	61	29.51	1010	N	30.0	6.0	7.5	05/06/72	0810	SWS
0023	0023	65	PONT	LEMAN	326	2	3	8	1	3500	12.3	75917	22	0	0	1	0		69	65	29.09	780	N	21.0	12.0	3.4	04/21/72	1020	WJB
0132	0137	65	PONT	LEMAN	326	2	0	8	1	3500	12.3	29736	22	0	0	1	0		76	62	29.59	560	D	30.0	0.0	2.8	05/05/72	0820	SWS
0126	0131	63	PONT	CATAL	389	2	0	8	0	4000	12.0	54758	25	0	0	1	0		80	62	29.53	750	D	27.0	7.0	9.5	05/04/72	1910	WJB
0126	0140R	63	PONT	CATAL	389	2	0	8	0	4000	12.0	54788	25	0	0	1	0		81	65	29.62	760	D	27.0	7.0	9.1	05/05/72	1400	SWS
0143	0149	62	PONT	TEMPE	194	2	3	4	0	3000	10.3	74004	16	0	0	0	0		74	61	29.51	520	N	29.0	3.0	7.2	05/06/72	1010	SWS
0157	0164	71	RAMB	MATAD	402	2	0	8	0	4000	12.0	9548	20	1	1	1	0		69	63	29.36	540	D	30.0	2.0	3.2	05/08/72	0100	WJB
0167	0175	71	RAMB	HORNE	232	1	0	6	0	3000	10.3	5493	16	1	1	1	0		69	59	29.52	520	D	34.0	5.0	1.6	05/09/72	1000	WJB
0074	0074	70	RAMB	JAVEL	304	2	0	8	0	3500	11.2	23414	19	0	1	1	0		69	54	29.62	575	D	27.0	5.0	1.2	04/27/72	0200	SWS
0148	0154	70	RAMB	AMBAS	360	2	0	8	1	4000	13.2	55712	22	0	1	1	0		83	65	29.47	560	D	30.0	8.0	5.7	05/06/72	1055	WJB
0148	0158R	70	RAMB	AMBAS	360	2	0	8	1	4000	13.2	55748	22	0	1	1	0		69	59	29.33	560	D	30.0	8.0	5.6	05/08/72	1140	SWS
0152	0159	68	RAMB	AMBAS	343	2	0	8	1	4000	13.2	60166	22	0	1	1	0		70	59	29.31	590	D	25.0	4.0	5.2	05/08/72	1400	SWS
0062	0062	66	RAMB	CLASS	232	1	0	6	0	3500	11.2	71805	19	0	0	1	0		70	54	29.60	600	D	28.0	8.0	3.8	04/26/72	2200	SWS
0163	0170	62	RAMB	CLASS	196	1	0	6	0	3000	10.3	41719	20	0	0	0	0		73	63	29.48	470	D	32.0	1.0	7.1	05/09/72	1310	SWS
0015	0015	71	VOLK	BEETL	097	1	4	4	0	2250	8.8	16879	11	1	1	1	0		69	65	29.43	750	N	37.0	0.0	9.0	04/20/72	1525	WJB
0088	0088	70	VOLK	BEETL	097	1	4	4	0	2000	8.3	29962	11	0	1	1	0		69	62	29.52	1100	N	58.0	0.0	6.6	04/29/72	1000	WJB
0036	0036	69	VOLK	BEETL	091	1	4	4	0	2000	8.3	40970	11	0	1	1	0		70	58	29.11	720	N	46.0	-2.0	2.7	04/22/72	2000	SWS
0101	0101	69	VOLK	BEETL	091	1	4	4	0	2000	8.3	38465	11	0	0	1	0		71	63	29.21	975	N	40.0	0.0	3.7	05/01/72	1930	WJB
0026	0026	68	VOLK	BEETL	091	1	4	4	0	2000	8.3	38361	11	0	1	1	0		76	64	29.04	980	N	35.0	0.0	9.1	04/21/72	2000	SWS
0031	0031	67	VOLK	BEETL	091	1	4	4	0	2000	8.3	54448	11	0	0	1	0		69	62	29.23	850	N	34.0	0.0	5.6	04/22/72	0605	WJB
0106	0106	67	VOLK	SQUAR	097	2	4	4	0	2250	8.8	73045	11	0	0	1	0		69	54	29.72	870	N	31.0	0.0	4.2	05/02/72	0630	SWS
0082	0082	65	VOLK	BEETL	073	2	4	4	0	2000	8.3	26426	10	0	0	1	0		69	57	29.50	1300	N	31.0	0.0	10.8	04/28/72	2200	SWS
0159	0166	62	VOLK	BEETL	073	1	4	4	0	2000	8.3	99999	10	0	0	0	0		68	60	29.39	1300	N	47.0	0.0	7.7	05/09/72	0455	WJB
0162	0169	59	VOLK	SEDAN	073	1	4	4	0	2000	8.3	53323	10	0	0	0	0		71	61	29.49	700	N	45.0	0.0	5.8	05/09/72	1110	SWS
0130	0135	57	VOLK	BEETL	073	1	4	4	0	2000	8.3	99999	10	0	0	0	0		69	60	29.57	920	N	45.0	0.0	7.4	05/05/72	0315	WJB

CAR#	RUN#	YR	MAKE	MODEL	CID	BBL	TRN	CYL	AIR	INRT	RDHP	ODOMR	ET	EVP	EXH	EPV	VTP	DB	WB	BAROM	IRH	D/N	DWEL	IGNT	ICO	DATE	TIME	PIC
0119	0125	71	BUIC	ELECT	455	4	0	8	1	4500	14.0	15855	25	1	1	1	0	74	65	29.68	525	D	34.0	5.0	2.7	05/04/72	1100	KEG
0079	0084	70	BUIC	ESTAT	455	4	0	8	1	5000	14.7	39392	25	0	1	1	0	74	64	30.20	625	D	29.0	6.0	1.5	04/28/72	1400	KEG
0110	0118	69	BUIC	SKYLA	350	2	0	8	1	4000	13.2	38565	20	0	1	1	0	76	67	30.02	560	D	31.0	5.0	3.9	05/03/72	1500	RQM
0158	0166	69	BUIC	SKYLA	350	2	0	8	1	4000	13.2	33014	20	0	1	1	0	70	63	29.80	550	D	27.5	0.0	2.6	05/10/72	0100	KEG
0111	0119	68	BUIC	SPORT	350	2	0	8	1	4000	13.2	41129	20	0	1	1	0	76	68	30.01	600	D	34.0	4.0	.6	05/03/72	1800	RQM
0034	0037	67	BUIC	LESAB	340	4	0	8	1	4500	14.0	55543	25	0	0	1	0	74	62	28.50	540	D	30.5	2.0	3.0	04/22/72	1130	KEG
0133	0141	67	BUIC	GS400	400	4	0	8	1	4000	13.2	60365	20	0	0	1	0	73	61	30.24	600	D	35.0	15.0	5.7	05/06/72	0700	KEG
0122	0130	66	BUIC	SPECI	300	2	0	8	1	3500	12.3	46454	20	0	0	1	0	72	61	29.90	780	D	30.5	5.0	1.2	05/05/72	0500	KEG
0156	0147	66	BUIC	SPECI	225	1	0	6	0	3500	11.2	35179	20	0	0	1	0	73	65	30.07	650	D	15.0	8.0	6.9	05/10/72	1300	RQM
0048	0052	65	BUIC	SPECI	225	1	0	6	0	3500	11.2	95000	20	0	0	1	0	71	64	29.90	550	D	27.5	8.0	9.8	04/24/72	0930	KEG
0095	0058	65	BUIC	ELECT	401	4	0	8	1	4500	14.0	47762	25	0	0	1	0	72	63	29.95	525	D	31.0	10.0	1.3	04/25/72	0900	KEG
0152	0162	63	BUIC	LESAB	401	2	0	8	0	4500	12.7	99999	20	0	0	1	0	74	68	29.53	620	D	31.0	10.0	1.6	05/09/72	0700	KEG
0152	0171R	63	BUIC	LESAB	401	2	0	8	1	4500	14.0	99999	20	0	0	1	0	72	64	30.00	620	D	31.0	10.0	1.6	05/10/72	1000	KEG
0065	0070	62	BUIC	SKYLA	215	2	0	8	0	3000	10.3	75543	16	0	0	0	0	71	64	29.98	640	D	32.0	7.0	6.5	04/26/72	1600	RQM
0082	0104	71	CADI	DEVIL	472	4	0	8	1	5000	14.7	4312	26	1	1	1	0	76	69	30.04	625	D	32.0	7.0	.1	05/01/72	1600	RQM
0092	0111R	71	CADI	DEVIL	472	4	0	8	1	5000	14.7	4312	26	1	1	1	0	76	67	30.02	630	D	32.0	7.0	.1	05/02/72	1350	RQM
0097	0104	69	CADI	FLEET	472	4	0	8	1	5500	15.3	37405	24	0	1	1	0	73	64	29.91	575	D	31.0	0.0	2.2	05/02/72	0100	KEG
0012	0014	67	CADI	DEVIL	429	4	0	8	1	5000	14.7	82854	26	0	0	1	0	73	59	30.00	450	D	32.0	5.0	2.7	04/19/72	0700	RQM
0004	0005	65	CADI	DEVIL	429	4	0	8	1	5000	14.7	78642	26	0	0	1	0	75	64	29.85	570	D	32.0	6.0	0.8	04/17/72	1600	RQM
0018	0019	62	CADI	DEVIL	429	4	0	8	1	5000	14.7	99999	26	0	0	0	0	75	61	29.75	580	D	32.5	-6.0	4.2	04/20/72	0630	KEG
0052	0057	61	CADI	DEVIL	390	4	0	8	1	5000	14.7	63188	21	0	0	0	0	71	63	29.95	530	D	30.5	10.0	5.1	04/25/72	0700	KEG
0052	0065R	61	CADI	DEVIL	390	4	0	8	1	5000	14.7	63217	21	0	0	0	0	73	64	30.00	530	D	30.5	10.0	5.1	04/26/72	0600	KEG
0016	0012	71	CHEV	CAMAR	250	1	3	6	0	3500	11.2	11829	18	1	1	1	0	73	59	30.00	575	N	35.0	4.0	6.4	04/19/72	0830	RQM
0057	0060	71	CHEV	IMPAL	350	2	0	8	1	4500	14.0	27670	24	1	1	1	0	73	63	29.92	510	D	31.0	4.0	2.6	04/25/72	1300	KEG
0102	0105	71	CHEV	VEGA	140	1	0	4	0	2500	9.4	13264	11	1	1	1	0	74	64	29.93	550	D	33.0	7.0	.5	05/02/72	0300	KEG
0126	0134	71	CHEV	MONTE	350	2	0	8	1	4000	13.2	8783	24	1	1	1	0	74	63	30.02	625	D	29.0	6.0	.4	05/05/72	1200	RQM
0137	0146	71	CHEV	IMPAL	350	2	0	8	1	4000	13.2	10487	20	1	1	1	0	74	62	30.08	575	D	23.0	13.0	0.1	05/07/72	0500	KEG
0026	0029	70	CHEV	MONTE	350	2	0	8	1	4000	13.2	19405	24	0	1	1	0	75	63	30.04	625	D	31.0	3.0	4.5	04/21/72	1130	RQM
0027	0030	70	CHEV	NOVA	230	1	0	6	0	3000	10.3	8223	18	0	1	1	0	75	63	30.04	635	D	37.0	3.0	0.3	04/21/72	1300	RQM
0038	0039	70	CHEV	KINGS	350	2	0	8	1	4500	14.0	55224	24	0	1	1	0	74	62	30.00	575	D	28.0	9.0	1.0	04/22/72	1600	JQM
0075	0091	72	CHEV	MALIB	307	2	0	8	1	3500	12.3	31582	20	0	1	1	0	74	64	30.15	525	D	29.0	3.0	3.5	04/29/72	0900	KEG
0037	0035	69	CHEV	CAMAR	350	2	0	8	1	3500	12.3	56435	18	0	1	1	0	73	58	30.00	535	D	31.5	0.0	10.0	04/22/72	0730	KEG
0037	0042R	69	CHEV	CAMAR	350	2	0	8	1	3500	12.3	56472	18	0	1	1	0	73	65	29.90	535	D	31.5	0.0	10.0	04/23/72	0500	KEG
0070	0074	69	CHEV	CAPRI	396	2	0	8	1	4500	14.0	44906	24	0	1	1	0	71	64	30.15	600	D	28.0	4.0	3.6	04/27/72	0930	KEG
0095	0098	69	CHEV	CORVE	350	4	0	8	1	3500	12.3	39021	20	0	1	1	0	72	63	30.15	625	D	27.0	5.0	.2	05/01/72	0500	KEG
0064	0067	68	CHEV	MALIB	327	2	0	8	1	3500	12.3	55407	20	0	1	1	0	72	63	30.10	525	D	23.0	-2.0	6.8	04/25/72	1100	KEG
0089	0093	68	CHEV	IMPAL	327	2	0	8	1	4000	13.2	51395	17	0	1	1	0	73	64	30.50	540	D	32.0	4.0	3.5	04/30/72	1200	KEG
0090	0096	68	CHEV	NOVA	230	1	0	6	0	3500	11.2	57033	18	0	1	1	0	72	62	30.15	540	D	32.0	4.0	.1	05/01/72	0100	KEG
0050	0053	67	CHEV	SPORT	250	1	3	6	0	3500	11.2	57189	20	0	0	1	0	71	64	29.90	550	N	31.0	3.5	4.7	04/24/72	1330	KEG
0130	0138	67	CHEV	IMPAL	283	2	0	8	1	4000	13.2	9563	24	0	0	1	0	71	60	30.20	510	D	28.5	7.0	6.1	05/06/72	0100	KEG
0138	0147	67	CHEV	CAPRI	327	4	0	8	1	4000	13.2	52073	24	0	0	1	0	73	63	30.10	525	D	23.0	0.0	10.2	05/07/72	0700	KEG
0084	0092	66	CHEV	BELAI	283	2	0	8	0	4000	12.0	82484	20	0	0	1	0	74	64	30.15	550	D	20.5	15.0	4.4	04/28/72	1030	KEG
0084	0095R	66	CHEV	BELAI	283	2	0	8	0	4000	12.0	82516	20	0	0	1	0	73	63	30.25	550	D	20.5	14.0	4.3	04/30/72	1600	KEG
0103	0110	65	CHEV	BELAI	283	2	0	8	0	4000	12.0	99999	20	0	0	1	0	74	67	30.02	570	D	27.0	4.0	5.7	05/02/72	1200	RQM
0141	0148	65	CHEV	IMPAL	327	4	0	8	1	4000	13.2	75834	20	0	0	1	0	73	63	30.03	565	D	24.5	7.0	7.6	05/07/72	0930	KEG
0091	0100	65	CHEV	BELAI	283	2	0	8	0	4000	12.0	65259	20	0	0	1	0	72	63	30.10	450	D	29.0	6.0	8.5	05/01/72	0900	KEG
0100	0108	65	CHEV	IMPAL	283	2	0	8	1	4000	13.2	68303	20	0	0	1	0	74	65	29.90	500	D	23.5	0.0	4.4	05/02/72	0900	KEG
0150	0159	65	CHEV	CORVA	164	2	3	6	0	2750	9.9	40311	14	0	0	0	0	74	68	29.60	850	N	37.0	2.0	5.9	05/03/72	0100	KEG
0371	0376	64	CHEV	BELAI	283	2	0	8	0	3500	11.2	74826	20	0	0	0	0	76	67	30.10	680	D	34.0	3.0	1.5	04/27/72	1300	RQM
0115	0120	64	CHEV	CORVA	164	2	0	6	0	2750	9.9	70815	14	0	0	0	0	74	49	29.70	650	D	28.0	13.0	5.6	05/04/72	0100	KEG

CAR#	RUN#	YR	MAKE	MODEL	CID	BB L	TR N	CY L	A/C	INRT	RDHP	ODOMR	ET	EV P	EX H	EC V	PCV	VTP	DB	WB	BAROM	IRPM	D/N	DWEL	IGNT	ICO	DATE	TIME	PIC
0165	0175	64	CHEV	IMPAL	283	2	0	8	1	3500	12.3	85444	20	0	0	0	0		72	60	30.25	490	D	33.5	7.0	10.2	05/11/72	0930	KEG
0029	0028	63	CHEV	BELAI	230	1	0	6	0	3500	11.2	79466	20	0	0	0	0		73	60	30.20	605	D	12.0	30.0	8.9	04/21/72	0900	KEG
0054	0059	63	CHEV	BELAI	283	1	3	8	0	4000	12.0	65421	20	0	0	0	0		73	62	29.95	610	N	32.0	10.0	4.6	04/25/72	1100	KEG
0073	0078	63	CHEV	BELAI	283	2	0	8	0	3500	11.2	99999	20	0	0	0	0		73	65	30.11	490	D	31.0	-4.0	5.7	04/27/72	1700	RQM
0148	0157	63	CHEV	NOVA	194	1	0	6	0	2750	9.9	65256	16	0	0	0	0		80	69	29.92	540	D	33.0	5.0	2.8	05/08/72	1230	RQM
0096	0101	62	CHEV	IMPAL	283	2	0	8	0	4000	12.0	99999	20	0	0	0	0		72	63	30.10	430	D	30.0	4.0	6.5	05/01/72	1100	RQM
0143	0158	62	CHEV	NOVA	194	1	0	6	0	3000	10.3	83842	16	0	0	0	0		80	69	29.92	760	D	19.0	8.0	0.9	05/08/72	1430	RQM
0008	0008	61	CHEV	IMPAL	283	2	0	8	0	4000	12.0	62500	20	0	0	0	0		72	57	30.15	550	D	18.0	-17.0	1.0	04/18/72	1200	RQM
0081	0085	60	CHEV	PARKW	283	2	0	8	0	4000	12.0	29092	20	0	0	0	0		76	67	30.06	560	D	32.0	15.0	5.0	04/28/72	1800	RQM
0021	0022	59	CHEV	BELAI	235	1	0	6	0	3500	11.2	14690	20	0	0	0	0		74	60	29.70	535	D	28.5	5.0	6.0	04/20/72	1130	KEG
0162	0170	58	CHEV	BISCA	235	1	0	6	0	3500	11.2	88677	20	0	0	0	0		73	64	29.92	600	D	29.0	8.0	6.5	05/10/72	0700	KEG
0171	0181	58	CHEV	BELAI	283	2	0	8	0	4000	12.0	96883	20	0	0	0	0		73	66	30.15	550	D	36.5	2.0	0.2	05/12/72	0430	KEG
0134	0139	57	CHEV	BELAI	283	2	0	8	0	3500	11.2	90861	20	0	0	0	0		71	60	30.20	450	D	30.5	0.0	5.6	05/06/72	0300	KEG
0005	0004	71	CHRY	NEWYO	440	4	0	8	1	4500	14.0	18100	24	1	1	1	0		74	65	29.85	600	D	28.5	-10.0	7.0	04/17/72	1400	RQM
0135	0142	70	CHRY	NEWPO	383	2	0	8	1	4500	14.0	12444	24	0	1	1	0		72	60	30.23	550	D	32.0	0.0	0.3	05/06/72	0900	KEG
0020	0023	69	CHRY	IMPER	440	4	0	8	1	5000	14.7	35890	20	0	1	1	0		74	60	29.70	450	D	29.5	6.0	4.5	04/20/72	1700	KEG
0080	0086	69	CHRY	NEWPO	440	4	0	8	1	4500	14.0	30131	24	0	1	1	0		72	65	30.07	625	D	27.0	5.0	3.8	04/28/72	1800	RQM
0076	0081	64	CHRY	NEWPO	413	4	0	8	1	4000	13.2	51594	23	0	0	0	0		74	64	30.23	500	D	26.5	9.0	3.1	04/28/72	0400	KEG
0166	0176	59	CHRY	WINDS	383	2	0	8	0	4000	12.0	86916	23	0	0	0	0		72	60	30.25	530	D	26.5	3.0	3.2	05/11/72	1130	KEG
0010	0010	71	DODG	CHARG	318	2	0	8	1	3500	12.3	36897	19	1	1	1	0		75	56	30.10	560	D	23.5	2.0	4.0	04/18/72	1500	RQM
0063	0068	70	DODG	SWING	318	1	0	6	0	3000	10.3	20694	15	0	1	1	0		73	63	30.10	710	D	43.5	2.0	3.0	04/26/72	1300	KEG
0106	0114	69	DODG	POLAR	383	2	0	8	1	4500	14.0	20803	24	0	1	1	0		74	66	29.75	420	D	38.0	8.0	6.1	05/03/72	0500	KEG
0114	0116	68	DODG	DART	225	1	0	6	0	3000	10.3	46569	18	0	1	1	0		71	66	29.75	590	D	39.0	4.0	3.8	05/03/72	1000	KEG
0121	0129	68	DODG	DART	225	1	0	6	0	3000	10.3	35570	18	0	1	1	0		72	60	29.90	610	D	43.5	4.0	1.5	05/05/72	0300	KEG
0042	0046	66	DODG	DART	225	1	0	6	0	3000	10.3	27747	18	0	0	1	0		74	63	29.04	575	D	42.0	5.0	4.3	04/23/72	1200	RQM
0074	0079	66	DODG	DART	225	1	0	6	0	3000	10.3	76307	18	0	0	1	0		73	64	30.23	500	D	44.0	-10.0	3.1	04/28/72	1230	KEG
0049	0050	63	DODG	880	361	2	0	8	1	3500	12.3	96471	20	0	0	0	0		70	64	29.85	575	D	32.0	5.0	4.0	04/24/72	0600	KEG
0022	0021	60	DODG	SENEC	318	2	0	8	0	4000	12.0	87047	20	0	0	0	0		74	60	29.70	485	D	18.5	-5.0	6.0	04/20/72	1000	RQM
0170	0183	57	DODG	CORON	325	4	0	8	0	4000	12.0	99999	20	0	0	0	0		73	66	30.15	630	D	27.0	11.0	1.0	05/12/72	0630	KEG
0006	0006	71	FORD	PINTO	098	1	4	6	0	2250	8.8	16947	11	1	1	1	0		71	61	30.15	750	N	38.0	6.0	0.1	04/18/72	0700	RQM
0144	0153	71	FORD	PINTO	122	1	0	4	0	2250	8.8	12230	15	1	1	1	0		78	67	29.92	600	D	44.0	8.0	3.3	05/08/72	0430	KEG
0149	0160	71	FORD	GALAX	400	2	0	8	1	4500	14.0	14179	25	1	1	1	0		74	68	29.57	550	D	31.0	10.0	5.0	05/09/72	0300	KEG
0151	0161	71	FORD	GALAX	351	2	0	8	1	4000	13.2	20776	25	1	1	1	0		74	68	29.52	480	D	32.5	3.0	3.7	05/09/72	0500	KEG
0157	0168	71	FORD	LTD	400	2	0	8	1	4500	14.0	11191	20	1	1	1	0		70	63	29.82	500	D	28.5	4.0	2.2	05/10/72	0300	KEG
0014	0015	70	FORD	GALAX	390	2	0	8	1	4000	13.2	22572	25	0	1	1	0		73	59	30.00	600	D	28.0	6.5	4.0	04/19/72	1000	RQM
0129	0137	70	FORD	MAVER	170	1	3	6	0	2750	9.9	23235	16	0	1	1	0		72	68	30.03	560	N	38.0	5.0	4.6	05/05/72	1830	RQM
0140	0144	70	FORD	FALCO	250	1	0	6	0	3500	11.2	27974	16	0	1	1	0		74	62	30.08	550	D	46.0	0.0	0.3	05/07/72	0100	KEG
0078	0083	69	FORD	LTD	390	2	0	8	1	4500	14.0	49793	25	0	1	1	0		73	64	30.20	530	D	33.0	0.0	0.2	04/28/72	1500	KEG
0117	0122	69	FORD	GALAX	351	2	0	8	1	4500	14.0	39006	25	0	1	1	0		74	69	29.60	460	D	20.0	5.0	1.1	05/04/72	0500	KEG
0083	0090	68	FORD	GALAX	390	2	0	8	0	4000	12.0	55889	25	0	1	1	0		74	63	30.15	640	D	33.0	12.0	4.2	04/29/72	0730	KEG
0125	0132	68	FORD	TORIN	302	2	0	8	1	3500	12.3	30592	20	0	1	1	0		72	60	30.00	550	D	26.0	5.0	3.2	05/05/72	0900	KEG
0118	0124	67	FORD	FALCO	289	2	3	8	0	3500	11.2	72848	16	0	0	1	0		74	69	29.60	770	N	38.5	3.0	2.5	05/04/72	0900	KEG
0159	0169	67	FORD	COUNT	289	2	0	8	1	4500	14.0	72780	25	0	0	1	0		73	64	29.80	410	D	34.0	6.0	9.4	05/10/72	0500	KEG
0159	0174R	67	FORD	COUNT	289	2	0	8	1	4500	14.0	72816	25	0	0	1	0		71	60	30.23	410	D	34.0	6.0	9.4	05/11/72	0730	KEG
0032	0033	66	FORD	CUSTO	240	1	3	6	0	4000	12.0	57352	25	0	0	1	0		73	60	30.00	775	N	40.0	-0.3	2.5	04/21/72	0330	KEG
0107	0113	66	FORD	MUSTA	289	2	3	8	1	3000	11.3	83855	16	0	0	1	0		74	66	29.75	650	N	30.5	-3.0	8.1	05/03/72	0300	KEG
0113	0121	66	FORD	GALAX	289	2	0	8	0	4000	12.0	30866	25	0	0	1	0		74	69	29.60	430	D	31.0	8.0	5.1	05/04/72	0300	KEG
0033	0038	65	FORD	GALAX	289	2	0	8	0	4000	12.0	52414	20	0	0	0	0		73	59	28.50	550	D	32.0	-3.0	8.4	04/22/72	1330	RQM
0044	0043	65	FORD	FALCO	170	1	3	6	0	2750	9.9	67304	14	0	0	1	0		73	64	29.90	675	N	47.0	10.0	0.1	04/23/72	0700	KEG
0053	0055	65	FORD	GALAX	352	4	0	8	1	4000	13.2	40736	20	0	0	1	0		71	64	29.90	550	D	28.0	5.0	0.9	04/25/72	0330	KEG

CAR#	RUN#	YR	MAKE	MODEL	CID	BLOCK	TRANS	CYL	AIR/INRT	RDHP	ODOMR	FT	EVP	EHC	EPCV	VTP	DB	WB	BAROM	IRPM	D/N	ONFL	IGNT	ICO	DATE	TIME	PIC
0109	0117	65	FORD	GALAX	289	2	0	8	0 4000	12.0	98259	20	0	0	1	0	72	66	29.75	450	D	38.0	-6.0	3.2	05/02/72	1100	KEG
0066	0072	64	FORD	THUND	390	4	0	8	0 5000	13.4	58182	22	0	0	0	0	72	64	30.10	640	D	22.0	-2.0	2.9	04/27/72	0800	KEG
0072	0077	64	FORD	GALAX	352	2	0	8	0 4000	12.0	84680	20	0	0	0	0	73	66	30.12	550	D	29.0	6.0	0.5	04/27/72	1600	RQM
0085	0088	64	FORD	FALCO	170	1	3	6	0 2750	9.9	99999	14	0	0	1	0	74	64	30.15	800	N	33.5	14.0	0.1	04/29/72	0800	KEG
0108	0115	63	FORD	COUNT	300	2	0	6	1 4000	13.2	99999	20	0	0	0	0	73	69	29.78	460	D	32.0	6.0	2.2	05/03/72	0900	KEG
0127	0135	63	FORD	FALCO	170	1	3	6	0 2750	9.9	99999	14	0	0	0	0	72	67	30.02	850	N	38.0	0-2.0	0.3	05/05/72	1430	RQM
0160	0177	63	FORD	FAIRL	260	2	0	8	0 3500	11.2	99999	16	0	0	0	0	72	60	30.20	690	D	28.0	11.0	2.6	05/11/72	1330	KEG
0013	0013	62	FORD	FAIRL	170	1	0	6	0 3000	10.3	71843	16	0	0	0	0	73	59	30.00	600	D	42.5	4.0	0.2	04/19/72	0530	RQM
0120	0127	61	FORD	FALCO	170	1	3	6	0 2500	9.4	99999	14	0	0	0	0	75	68	30.01	650	N	37.0	8.0	3.1	05/24/72	1500	RQM
0154	0164	60	FORD	FALCO	144	1	3	6	0 2500	9.4	32232	14	0	0	0	0	72	66	29.58	700	N	45.0	7.0	3.0	05/30/72	1100	KEG
0035	0036	59	FORD	CUSTO	223	1	3	6	0 3500	11.2	79270	20	0	0	0	0	73	60	30.00	620	N	44.5	8.0	6.0	04/22/72	0930	KEG
0061	0064	58	FORD	THUND	352	4	0	8	0 4000	12.0	90032	20	0	0	0	0	70	64	30.00	515	D	27.0	12.0	4.0	04/25/72	0230	KEG
0124	0131	71	MERC	COUGA	351	2	0	8	1 4000	13.2	17140	20	1	1	1	0	72	61	29.93	625	D	29.5	0.0	2.3	05/09/72	0700	KEG
0002	0001	70	MERC	MONTE	351	2	0	8	0 3500	11.2	50554	20	0	1	1	0	72	64	29.72	585	D	23.0	9.0	0.5	04/17/72	0800	RQM
0045	0048	69	MERC	MONTE	390	2	0	8	1 4500	14.0	71379	24	0	1	1	0	73	64	29.82	450	D	28.5	0.0	5.2	04/24/72	0130	KEG
0128	0136	63	MERC	COMET	144	1	0	6	0 2750	9.9	96265	14	0	0	0	0	73	67	30.03	675	D	41.0	-3.0	0.1	05/05/72	1600	RQM
0068	0071	62	MERC	MONTE	390	2	0	8	1 4500	14.0	86764	20	0	0	0	0	72	64	30.09	630	D	27.0	0.0	5.2	04/27/72	0130	KEG
0058	0062	61	MERC	COMET	170	1	0	6	0 2750	9.9	50658	14	0	0	0	0	75	65	29.95	525	D	37.0	3.0	1.6	04/25/72	1650	RQM
0025	0026	71	OLDS	CUTLA	350	4	0	8	1 4000	13.2	9770	20	1	1	1	0	72	61	30.15	540	D	29.0	0.9	0.1	04/21/72	0500	RQM
0131	0140	71	OLDS	DELTA	350	2	0	8	1 4500	14.0	15373	21	1	1	1	0	71	60	30.20	600	D	30.0	5.0	0.3	05/26/72	0500	KEG
0131	0140R	71	OLDS	DELTA	350	2	0	8	1 4500	14.0	15373	21	1	1	1	0	72	62	30.04	600	D	30.0	5.0	0.3	05/27/72	1200	KEG
0003	0002	70	OLDS	CUTLA	350	2	0	8	1 3500	12.3	25501	20	0	1	1	0	71	61	29.80	580	D	29.0	7.0	0.6	04/17/72	1200	RQM
0088	0094	68	OLDS	DELTA	455	2	0	8	1 4500	14.0	62129	20	0	1	1	0	73	64	30.25	590	D	34.0	3.5	1.5	04/25/72	1400	KEG
0067	0073	67	OLDS	442	400	4	4	8	0 4000	12.0	34731	20	0	0	1	0	73	64	30.10	970	N	30.5	23.0	1.8	04/27/72	0530	KEG
0147	0156	66	OLDS	98	425	4	0	8	1 4500	14.0	60464	20	0	0	1	0	76	66	29.90	570	D	31.0	6.5	1.2	05/04/72	1130	KEG
0060	0066	65	OLDS	F-85	330	2	0	8	0 4000	12.0	66440	20	0	0	1	0	72	63	30.00	590	D	23.0	7.0	5.2	04/26/72	0700	KEG
0069	0075	64	OLDS	F-85	330	2	0	8	1 3500	12.3	77623	20	0	0	0	0	74	63	30.12	580	D	30.0	22.0	6.3	04/27/72	1100	RQM
0153	0163	63	OLDS	SUPER	394	4	0	8	1 4500	14.0	99999	21	0	0	0	0	72	58	29.56	625	D	29.5	6.0	6.2	05/09/72	0900	KEG
0167	0178	60	OLDS	EIGHT	371	2	0	8	0 4500	12.0	60263	20	0	0	0	0	72	67	30.10	550	D	33.0	5.0	4.9	05/11/72	2030	RQM
0169	0180	58	OLDS	EIGHT	371	4	0	8	0 4500	12.7	99133	20	0	0	0	0	73	67	30.12	600	D	30.0	0.0	1.0	02/12/72	0230	KEG
0051	0051	71	PLYM	DUSTE	225	1	0	6	0 3000	10.3	5430	18	1	1	1	0	71	64	29.90	710	D	45.0	4.0	0.3	04/24/72	0730	KEG
0051	0051R	71	PLYM	DUSTE	225	1	0	6	0 3000	10.3	5467	18	1	1	1	0	71	64	29.90	110	D	45.0	4.0	0.3	04/25/72	0530	KEG
0099	0107	70	PLYM	DUSTE	225	1	0	6	1 3000	11.3	21066	20	0	1	1	0	74	64	29.85	550	D	44.0	4.0	5.2	05/02/72	0700	KEG
0136	0145	70	PLYM	FURY	318	2	0	8	1 4000	13.2	27284	24	0	1	1	0	74	62	30.08	680	D	25.0	10.0	4.9	05/07/72	0300	KEG
0037	0037	69	PLYM	FURY	318	2	0	8	1 4000	13.2	62440	24	0	1	1	0	72	57	30.15	580	D	31.5	0.0	5.3	04/18/72	0800	RQM
0036	0034	68	PLYM	VALIA	225	1	0	6	0 3000	10.3	54368	18	0	1	1	0	73	59	30.00	725	D	38.5	8.0	0.3	04/22/72	0530	KEG
0023	0018	67	PLYM	FURY	318	2	0	8	0 4000	12.0	43461	25	0	0	1	0	74	60	29.75	560	D	23.0	13.0	2.9	04/20/72	0330	KEG
0039	0040	66	PLYM	BELVE	318	2	0	8	1 3500	12.3	54450	19	0	0	1	0	73	64	29.83	590	D	30.0	20.0	6.1	04/23/72	0100	KEG
0059	0063	65	PLYM	VALIA	225	1	0	6	0 3000	10.3	59218	18	0	0	1	0	70	64	30.00	580	D	42.0	15.0	0.1	04/26/72	0100	KEG
0092	0097	65	PLYM	FURY	383	2	0	8	0 4500	12.7	82759	25	0	0	1	0	72	62	30.15	510	D	29.0	10.0	1.7	05/01/72	0300	KEG
0015	0025	64	PLYM	VALIA	273	2	0	8	0 3000	10.3	81259	18	0	0	0	0	72	61	30.06	490	D	32.0	6.0	2.2	04/21/72	0300	KEG
0031	0032	61	PLYM	BELVE	318	2	0	8	0 4000	12.0	60088	20	0	0	0	0	73	59	30.07	590	D	31.5	30.0	2.6	04/22/72	0130	KEG
0142	0151	59	PLYM	BELVE	318	2	0	8	0 3500	12.0	98352	20	0	0	0	0	80	68	30.00	560	D	31.0	2.0	3.9	05/08/72	0030	KEG
0024	0024	71	PONT	CATAL	350	2	0	8	1 4500	14.0	16460	26	1	1	1	0	71	61	30.06	740	D	18.0	21.0	0.1	04/21/72	0130	KEG
0043	0045	70	PONT	LEMAN	350	2	0	8	1 4000	13.2	35956	22	0	1	1	0	73	64	30.00	600	D	33.0	6.0	0.3	04/23/72	1130	KEG
0112	0126	69	PONT	CATAL	400	4	0	8	1 4500	14.0	64512	26	0	1	1	0	76	69	30.02	575	D	31.0	9.0	4.5	05/04/72	1300	RQM
0105	0112	68	PONT	FIREB	350	4	0	8	1 3500	12.3	54599	18	0	1	1	0	74	66	29.80	650	D	32.0	8.0	1.3	05/03/72	0100	KEG
0040	0041	67	PONT	FIREB	400	4	0	8	1 4500	14.0	52887	20	0	0	1	0	73	64	29.85	625	D	33.5	11.0	4.4	04/23/72	0300	KEG
0030	0031	66	PONT	GTO	389	4	4	8	0 4000	12.0	96000	22	0	0	1	0	74	63	30.08	850	N	32.0	15.0	0.8	04/21/72	1500	RQM
0030	0047R	66	PONT	GTO	389	4	4	8	0 4000	12.0	96007	22	0	0	1	0	74	62	29.96	850	N	32.0	15.0	0.8	04/23/72	1400	RQM

CAR#	RUN#	YR	MAKE	MODEL	CID	B L	B R	T N	C Y L	A / C	INRT	RDHP	ODOMR	FT	EV P	EX H	EP C V	VTP	DB	WB	BARDM	IRPM	D / N	DWEL	IGNT	ICO	DATE	TIME	PIC
0087	0089	66	PONT	TEMPE	326	2	0	8	1		3500	12.3	69762	22	0	0	1	0	73	63	30.15	550	D	28.0	21.0	6.4	04/29/72	0530	KEG
0062	0059	65	PONT	BONNE	389	4	0	8	1		4500	14.0	50450	26	0	0	1	0	74	66	29.99	550	D	17.0	4.0	2.2	04/26/72	1400	RQM
0132	0143	63	PONT	BONNE	389	4	0	8	1		4500	14.0	82100	25	0	0	0	0	74	68	30.02	500	D	29.0	6.0	6.8	05/06/72	1230	RQM
0163	0173	62	PONT	CATAL	389	2	0	8	0		4000	12.0	53482	25	0	0	0	0	73	66	30.07	710	D	23.0	5.0	6.1	05/10/72	1430	RQM
0011	0011	60	PONT	SKYCH	389	2	0	8	0		4000	12.0	78332	23	0	0	0	0	73	54	30.00	625	D	30.0	10.0	0.7	04/18/72	1700	RQM
0094	0102	71	RAMB	GREML	232	1	3	6	0		3000	10.3	14757	21	1	1	1	0	76	67	30.04	600	N	32.0	0.0	.1	05/01/72	1200	RQM
0145	0152	70	RAMB	GREML	199	1	0	6	0		3000	10.3	22644	17	0	1	1	0	80	68	30.00	620	D	30.0	1.0	3.8	05/08/72	0230	KEG
0101	0109	68	RAMB	REBEL	290	2	0	8	1		3500	12.3	51694	21	0	1	1	0	74	65	29.90	550	D	30.0	0.0	4.5	05/02/72	1100	KEG
0123	0128	67	RAMB	CLASS	232	1	0	6	0		4500	11.2	35916	21	0	0	1	0	71	60	29.86	580	D	30.0	5.0	1.2	05/05/72	0100	KEG
0009	0009	66	RAMB	CLASS	198	1	0	6	0		3500	11.2	36221	19	0	0	1	0	74	57	30.10	360	D	23.5	12.0	5.5	04/18/72	1400	RQM
0155	0165	64	RAMB	CLASS	196	1	3	6	0		3000	10.3	44990	19	0	0	0	0	73	67	29.60	560	N	32.0	6.0	5.3	05/09/72	1300	RQM
0041	0044	63	RAMB	AMBAS	327	2	0	8	0		3500	11.2	99178	19	0	0	0	0	73	64	29.00	680	D	32.0	-5.0	5.0	04/23/72	0900	KEG
0151	0172	61	RAMB	AMERI	196	1	3	6	0		2750	9.9	56369	15	0	0	0	0	72	64	30.05	660	N	43.5	7.0	2.8	05/10/72	1200	KFG
0028	0027	59	RAMB	CLASS	196	1	3	6	0		3500	11.2	61213	20	0	0	0	0	73	61	30.15	580	N	30.5	3.0	4.7	04/21/72	0700	KEG
0046	0049	70	VOLK	SQUAR	097	F	4	4	0		2500	9.4	46473	13	0	1	1	0	73	64	29.80	780	N	46.0	12.0	5.1	04/23/72	0330	KEG
0047	0054	69	VOLK	BEETL	091	1	4	4	0		2000	8.3	24500	11	0	1	1	0	74	65	30.04	600	N	30.0	7.0	1.0	04/24/72	1400	RQM
0139	0150	69	VOLK	BEETL	091	1	4	4	0		2000	8.3	36160	11	0	1	1	0	75	68	30.07	700	N	29.0	0.0	0.1	05/07/72	1300	RQM
0139	0143	69	VOLK	BEETL	091	1	4	4	0		2000	8.3	36167	11	0	1	1	0	78	67	29.92	600	N	27.0	0.0	1.3	05/08/72	0730	KEG
0077	0082	68	VOLK	BEETL	091	1	4	4	0		2000	8.3	28456	11	0	1	1	0	74	54	30.25	700	N	26.0	0.0	1.0	04/28/72	0600	KEG
0056	0061	67	VOLK	BEETL	091	1	4	4	0		2000	8.3	69749	11	0	0	1	0	74	65	29.94	650	N	25.0	8.0	9.1	04/25/72	1500	RQM
0116	0123	65	VOLK	VAN	078	1	4	4	0		2750	9.9	65718	11	0	0	1	0	74	69	29.60	700	N	28.0	11.0	2.4	05/04/72	0700	KEG
0093	0099	64	VOLK	VAN	078	1	4	4	0		2750	9.9	69689	12	0	0	0	0	72	63	30.10	630	N	31.0	8.0	3.6	05/01/72	0700	KFG
0098	0106	63	VOLK	BEETL	073	1	4	4	0		2000	8.3	92242	10	0	0	0	0	74	64	29.88	890	N	33.0	10.0	6.3	05/02/72	0500	KEG
0146	0155	59	VOLK	BEETL	073	1	4	4	0		2000	8.3	99999	11	0	0	0	0	80	67	29.90	500	N	40.0	9.0	3.2	05/08/72	0930	KEG
0168	0182	58	VOLK	BEETL	073	1	4	4	0		2000	8.3	99999	10	0	0	0	0	73	66	30.20	600	N	36.5	5.0	5.6	05/12/72	0800	KEG
0172	0184	57	VOLK	BEETL	073	1	4	4	0		2000	8.3	99999	10	0	0	0	0	73	66	30.21	675	N	45.0	7.0	6.1	05/12/72	1030	KEG
0086	0087	71	MISC	DATSU	097	1	4	4	0		2000	8.3	10494	12	1	1	1	0	72	63	30.15	800	N	51.0	10.0	0.3	04/29/72	0100	KFG
0164	0179	70	MISC	TOYOT	116	1	4	4	0		2000	8.3	38389	11	0	1	1	0	73	67	30.10	900	N	53.0	1.0	0.4	05/12/72	1230	RQM
0019	0020	66	MISC	KADET	065	1	4	4	0		2000	8.3	52668	12	0	0	0	0	76	61	29.70	800	N	60.0	0.0	.2	04/20/72	0700	KEG

4.2 1972 AND 1975 FEDERAL TEST DATA

This section contains test results calculated in accordance with the 1972 and 1975 Federal Procedure. Data for hydrocarbon, carbon monoxide, carbon dioxide, nitrogen oxide, nitrogen dioxide, oxides of nitrogen and oxides of nitrogen corrected for humidity are included as grams per vehicle mile. Data are included for each of the six cities, and are sorted by vehicle make. The order in which the vehicle number and run number are presented is consistent with that of Section 4.1, permitting easy identification of specific vehicles. Replicate tests are included next to the original test and have an "R" following the run number.

1972 AND 1975 FEDERAL TEST DATA

HEADING	DESCRIPTION
HC	Hydrocarbon calculated mass emissions as measured by the flame ionization detector.
CO	Carbon monoxide mass emissions as measured by NDIR instrumentation.
CO_2	Carbon dioxide mass emissions as measured by NDIR instrumentation.
NO	Nitrogen oxide mass emissions as measured by the chemiluminescence method.
NO_2	Nitrogen dioxide mass emissions are the result of the difference between NO and NO_x.
NO_x	Oxides of nitrogen mass emissions as measured by chemiluminescence instrument.
NO_xC	Oxides of nitrogen mass emissions which have been corrected for humidity.

		WEIGHTED MASS - 1972 PROCEDURE							WEIGHTED MASS - 1975 PROCEDURE						
CAR#	RUN#	HC	CO	CO2	NO	NO2	NOX	NOXC	HC	CO	CO2	NO	NO2	NOX	NOXC
0170	0446	4.09	97.93	818.25	2.86	0.42	3.28	3.21	3.46	83.89	796.96	2.67	0.48	3.15	3.08
0156	0427	6.57	92.44	759.02	4.10	1.16	5.27	4.90	5.30	71.14	745.45	4.16	1.42	5.58	5.19
0046	0199	5.18	103.83	643.83	3.11	0.58	3.70	3.55	3.99	74.03	634.73	3.25	0.75	4.01	3.86
0046	0206R	5.20	101.47	640.33	2.88	0.73	3.62	3.61	4.03	66.93	640.44	3.22	0.95	4.18	4.16
0112	0360	5.90	55.12	687.17	4.80	1.70	6.51	6.10	5.41	47.46	645.61	4.61	1.90	6.52	6.10
0081	0271	7.29	114.12	716.98	2.62	0.38	3.01	2.76	4.35	73.20	740.57	2.84	0.79	3.64	3.33
0111	0353	5.84	75.73	525.38	1.84	0.71	2.55	3.15	5.02	64.36	504.98	1.93	0.61	2.55	3.14
0065	0242	6.66	100.63	464.31	2.61	0.47	3.08	2.75	5.75	82.41	454.26	2.60	0.73	3.34	2.98
0124	0371	10.05	183.34	612.89	1.66	0.22	1.89	1.81	8.88	162.14	585.40	1.53	0.18	1.71	1.64
0151	0415	10.31	213.87	599.16	1.57	0.19	1.76	1.65	8.83	196.06	580.18	1.54	0.47	2.02	1.88
0076	0269	6.12	72.89	449.42	2.83	0.75	3.58	3.54	4.96	60.29	440.88	2.84	0.81	3.65	3.62
0095	0328	12.06	214.66	663.83	1.16	0.13	1.30	1.18	11.71	189.89	646.37	1.25	0.16	1.39	1.26
0069	0247	5.86	96.54	814.72	4.54	1.72	6.31	6.23	4.87	91.97	802.42	4.62	1.98	6.61	6.52
0131	0402	4.12	65.68	894.13	5.54	2.97	8.52	7.73	3.22	48.19	831.64	5.36	2.56	7.93	7.19
0092	0311	7.51	112.92	633.51	1.28	0.37	1.65	1.58	7.42	112.64	626.01	1.17	0.26	1.43	1.37
0169	0444	9.11	147.85	551.62	1.68	0.18	1.87	1.99	8.44	138.25	523.72	1.53	0.15	1.69	1.80
0001	0001	12.42	110.36	496.97	3.57	0.61	4.19	4.20	11.30	103.17	524.10	3.52	0.87	4.43	4.41
0041	0165	3.70	59.10	624.83	3.19	0.68	3.88	3.19	3.30	47.10	612.93	3.39	0.81	4.21	3.46
0049	0183	4.77	74.48	634.92	2.92	0.69	3.62	3.24	3.94	44.23	625.95	3.11	0.82	3.94	3.53
0048	0184	3.42	40.99	673.10	3.74	1.08	4.83	4.30	2.81	24.14	646.98	3.79	1.13	4.92	4.39
0099	0315	2.73	63.07	274.06	1.36	0.18	1.54	1.45	2.26	50.62	264.80	1.37	0.18	1.55	1.46
0125	0365	4.96	73.98	730.76	2.94	0.86	3.81	4.11	4.12	63.52	703.45	2.31	1.37	3.69	3.98
0013	0052	4.55	59.39	583.04	3.09	1.08	4.16	3.76	3.68	42.98	582.93	3.25	1.06	4.32	3.90
0062	0235	4.39	41.23	706.58	5.48	2.30	7.79	7.18	3.97	28.73	685.31	5.61	2.31	7.92	7.31
0167	0439	4.54	58.99	523.62	2.64	0.51	3.16	3.20	3.76	57.66	518.38	2.79	0.63	3.43	3.48
0168	0442	3.90	39.23	597.49	5.09	1.84	6.93	6.66	3.37	29.83	578.90	5.16	1.85	7.01	6.74
0005	0035	5.27	101.92	610.62	3.50	1.90	5.40	4.72	4.03	73.82	607.28	4.01	1.93	5.94	5.19
0003	0193	8.23	78.13	541.00	2.21	0.48	2.69	2.20	5.99	49.41	536.03	2.78	0.69	3.48	2.84
0060	0232	4.74	55.50	642.64	5.91	2.26	8.18	7.51	3.89	31.30	634.12	5.64	3.16	8.81	8.10
0007	0370	6.38	103.62	704.67	4.92	4.42	9.75	8.54	4.90	87.80	622.38	4.71	3.12	7.84	6.86
0014	0112	4.25	65.92	534.90	2.57	0.57	3.14	2.87	2.72	39.44	523.42	2.61	0.68	3.30	3.02
0136	0383	8.65	169.76	384.23	2.20	0.62	2.83	2.65	8.05	162.90	362.96	2.18	0.55	2.74	2.57
0152	0420	7.81	128.77	578.53	2.23	0.21	2.44	2.28	5.85	96.48	562.66	2.30	0.25	2.55	2.38
0152	0429R	7.11	127.35	597.04	2.26	0.31	2.57	2.45	5.52	98.20	581.35	2.31	0.30	2.61	2.49
0016	0126	2.08	35.59	910.01	3.78	0.92	4.71	4.14	1.87	22.02	835.49	3.52	1.14	4.66	4.09
0039	0159	6.10	79.88	528.53	2.64	0.37	3.01	2.59	5.18	57.37	518.75	2.66	0.52	3.19	2.74
0083	0274	3.79	68.09	677.29	4.40	1.20	5.61	5.07	2.84	49.92	646.15	4.57	1.51	6.08	5.50
0097	0377	3.34	46.29	657.16	2.45	0.92	3.37	3.29	2.52	34.88	639.81	2.63	0.97	3.61	3.52
0021	0132	8.94	161.31	518.67	1.31	0.12	1.43	1.30	7.87	139.86	518.15	1.46	0.16	1.63	1.48
0024	0134	8.26	56.81	480.99	3.22	0.76	3.99	3.61	6.88	48.62	466.87	3.25	0.72	3.98	3.60
0061	0236	5.97	83.71	646.95	3.88	0.99	4.88	4.05	4.77	61.15	645.25	3.83	1.37	5.21	4.32
0109	0338	6.78	49.42	639.80	3.49	1.30	4.79	4.78	5.21	32.07	612.18	3.46	1.54	5.01	5.00
0025	0139	12.14	116.34	535.60	3.41	1.02	4.43	4.02	9.34	71.54	613.46	3.93	1.40	5.34	4.84
0070	0245	10.04	111.75	455.48	1.82	0.46	2.28	1.89	9.77	110.12	444.45	1.82	0.43	2.26	1.88
0091	0234	15.11	137.60	541.05	1.09	0.10	1.20	1.08	15.27	142.41	541.48	1.09	0.11	1.20	1.08
0089	0236	62.51	145.81	556.62	2.07	0.40	2.47	2.32	59.80	115.96	564.50	2.30	0.56	2.86	2.68
0031	0145	9.04	115.29	386.95	2.46	0.66	3.13	2.86	7.53	103.08	374.85	2.48	0.62	3.11	2.84
0055	0224	5.01	71.02	443.92	3.12	0.68	3.81	3.76	4.56	61.63	434.02	3.09	0.69	3.79	3.74
0080	0270	7.66	97.89	422.85	2.34	0.63	2.97	2.99	6.74	81.85	413.47	2.36	0.67	3.03	3.05
0132	0378	5.31	39.24	455.85	2.86	0.99	3.86	3.64	4.76	38.59	456.83	2.94	0.90	3.85	3.63

CAR# RUN#	WEIGHTED MASS - 1972 PROCEDURE							WEIGHTED MASS - 1975 PROCEDURE						
	HC	CO	CO2	NO	NO2	NOX	NOXC	HC	CO	CO2	NO	NO2	NOX	NOXC
0085 0275	16.21	130.93	352.32	1.36	0.10	1.46	1.31	11.85	113.19	348.59	1.48	0.12	1.61	1.44
0087 0277	4.23	56.96	412.97	3.94	0.82	4.77	4.15	3.88	46.55	387.74	3.65	1.10	4.75	4.13
0108 0333	9.10	67.63	385.87	5.35	1.82	7.17	6.58	7.98	61.40	368.02	5.38	1.83	7.22	6.63
0050 0103	10.42	63.89	447.89	4.37	1.66	6.04	5.41	9.65	64.48	469.12	4.22	1.61	5.83	5.22
0100 0382	8.30	91.72	466.28	2.15	0.60	2.76	2.52	8.90	92.50	439.14	1.88	0.43	2.32	2.12
0100 0382R	10.79	100.93	522.34	2.30	1.10	3.40	3.42	10.36	98.77	500.30	2.12	1.03	3.15	3.17
0162 0434	21.00	84.21	540.72	4.14	1.94	6.08	6.04	19.68	77.23	510.88	4.12	1.73	5.86	5.81
0154 0425	8.11	104.84	571.13	2.16	0.23	2.39	2.36	6.78	100.11	552.47	2.04	0.20	2.25	2.22
0064 0237	5.52	67.01	409.45	1.75	0.22	1.93	1.71	5.18	61.32	410.95	1.76	0.26	2.03	1.76
0140 0394	19.15	75.14	413.26	1.56	0.21	1.77	1.57	18.63	66.48	423.17	1.68	0.23	1.92	1.70
0020 0131	8.09	121.38	456.40	1.17	0.13	1.31	1.21	7.02	107.18	456.09	1.27	0.15	1.42	1.32
0174 0465	16.04	171.25	344.42	0.80	0.06	0.86	0.86	15.11	147.70	337.99	0.86	0.15	1.02	1.02
0006 0036	9.75	56.14	554.30	3.00	0.67	3.68	2.98	10.38	51.79	529.62	2.74	0.60	3.34	2.71
0164 0450	2.90	48.41	963.41	3.41	0.88	4.29	4.32	2.17	34.80	1180.58	3.18	0.96	4.14	4.16
0037 0153	6.81	114.86	737.09	4.96	2.01	6.97	6.46	5.62	90.52	712.01	5.18	2.10	7.28	6.75
0127 0366	5.30	74.54	467.04	2.69	0.51	3.20	3.15	4.76	69.88	453.65	2.72	0.53	3.26	3.20
0130 0373	2.45	34.09	246.62	1.41	0.14	1.56	1.50	1.93	22.73	248.58	1.54	0.28	1.82	1.75
0072 0250	3.33	86.49	832.53	2.84	0.28	3.13	2.72	2.96	77.60	793.18	2.36	0.85	3.22	2.80
0117 0348	4.72	62.90	461.34	3.58	1.41	5.00	6.27	3.67	45.66	463.20	3.96	1.55	5.51	6.92
0135 0379	2.92	38.38	460.81	4.92	2.16	7.08	6.57	2.36	29.42	450.77	5.00	2.32	7.32	6.80
0088 0281	4.80	69.85	668.49	4.41	0.96	5.37	4.94	4.07	48.36	643.49	4.18	1.30	5.48	5.04
0085 0276	7.03	104.38	608.22	3.58	0.98	4.56	3.84	5.27	81.27	628.03	4.45	1.55	6.01	5.06
0026 0139	8.46	123.09	471.22	2.31	0.42	2.73	2.52	6.74	86.03	426.69	2.88	0.72	3.61	3.33
0176 0475	10.46	108.09	230.88	0.53	0.01	0.54	0.60	9.70	113.06	241.55	0.56	0.03	0.60	0.66
0033 0146	4.55	61.45	316.84	3.56	0.89	4.44	4.04	3.91	49.60	308.33	3.50	0.77	4.28	3.89
0068 0246	2.71	33.32	538.34	4.71	1.54	6.25	5.16	2.68	26.53	819.16	4.57	1.73	6.31	5.21
0067 0251	2.74	37.87	357.77	3.72	1.26	4.99	4.28	2.38	30.64	347.85	3.60	1.29	4.90	4.21
0071 0254	2.90	47.62	311.44	3.62	0.86	4.49	3.84	2.90	44.65	306.65	3.47	0.95	4.42	3.78
0133 0376	2.38	28.98	358.56	3.00	1.17	4.27	5.84	2.14	24.12	349.64	2.97	1.21	4.19	5.73
0133 0381R	1.89	25.05	313.84	2.29	0.48	2.77	2.70	1.60	20.00	307.38	2.24	0.46	2.71	2.64
0004 0032	2.70	42.07	463.35	5.91	2.74	8.66	7.10	2.50	38.42	443.79	5.73	2.43	8.16	6.69
0015 0078	6.34	85.74	619.35	3.37	0.88	4.25	3.51	4.67	48.27	617.37	3.92	1.17	5.10	4.33
0023 0136	5.42	95.26	566.72	2.88	0.93	3.82	3.67	4.56	81.44	579.19	2.99	0.98	3.98	3.83
0134 0380	2.70	35.91	492.15	3.95	1.60	5.55	5.71	2.26	30.05	462.79	3.79	1.57	5.36	5.52
0134 0380R	2.92	34.29	405.39	4.01	1.79	5.80	5.49	2.53	28.21	377.54	4.03	1.74	5.78	5.47
0146 0405	3.32	28.89	734.08	2.93	0.84	3.78	3.53	2.76	17.18	704.54	2.64	0.84	3.49	3.26
0010 0042	6.64	114.40	644.09	3.35	0.93	4.34	4.60	6.40	105.45	598.95	2.99	0.96	3.95	4.20
0012 0051	5.43	71.81	539.69	4.22	1.87	6.09	5.51	4.50	51.07	530.88	4.33	1.91	6.25	5.65
0139 0391	6.55	88.63	554.60	4.22	1.83	6.05	5.92	5.36	71.74	536.72	4.35	1.97	6.33	6.09
0009 0039	4.02	62.29	488.44	3.46	1.10	4.57	3.81	3.37	48.72	470.06	3.48	1.15	4.64	3.88
0040 0166	5.21	41.32	544.86	2.42	0.53	2.96	2.56	5.03	36.52	523.42	2.41	0.48	2.90	2.51
0093 0313	5.51	75.53	596.65	1.29	0.63	1.93	1.91	4.10	55.24	592.89	1.39	0.73	2.13	2.10
0114 0343	3.76	48.22	408.04	1.85	0.41	2.26	2.80	3.04	39.75	401.20	1.96	0.43	2.44	3.02
0115 0350	8.04	180.91	537.41	1.62	0.26	1.88	1.72	7.33	169.72	509.93	1.54	0.23	1.77	1.62
0017 0129	4.88	157.75	755.76	1.03	0.21	1.24	1.10	4.43	150.06	760.10	0.90	0.15	1.05	0.93
0063 0238	4.82	84.45	592.03	3.17	0.78	3.96	3.40	4.38	79.75	546.26	2.98	0.94	3.92	3.36
0075 0253	36.18	34.19	522.68	2.69	0.64	3.33	2.86	34.27	26.65	515.62	2.74	0.82	3.57	3.04
0137 0388	22.52	88.60	720.39	3.37	3.24	6.62	6.65	21.71	83.21	695.19	3.38	3.15	6.54	6.57
0144 0406	2.92	56.24	553.74	2.07	0.43	2.50	2.35	3.07	52.48	538.74	1.89	0.43	2.33	2.19
0030 0143	13.92	121.74	435.78	2.70	0.50	3.20	2.96	12.44	109.11	435.38	2.76	0.56	3.32	3.07

CAR#	RUN#	WEIGHTED MASS - 1972 PROCEDURE HC	CO	CO2	NO	NO2	NOX	NOXC	WEIGHTED MASS - 1975 PROCEDURE HC	CO	CO2	NO	NO2	NOX	NOXC
0066	0243	8.38	88.63	491.39	3.04	0.78	3.82	3.55	7.70	80.10	474.07	2.81	0.85	3.66	3.41
0145	0404	18.69	102.21	419.54	2.46	0.67	3.14	2.79	17.90	98.55	394.88	2.30	0.55	2.86	2.54
0153	0418	4.76	65.87	602.43	2.76	0.55	3.32	3.09	4.22	61.72	674.28	2.55	0.79	3.35	3.12
0110	0344	10.56	69.87	476.61	2.03	0.43	2.47	3.26	11.14	69.76	466.58	1.90	0.44	2.35	3.09
0113	0346	14.07	168.62	463.26	2.01	0.43	2.44	2.19	12.98	133.32	462.31	2.48	0.53	3.02	2.70
0110	0356R	10.21	59.59	508.96	2.49	0.48	2.97	2.75	9.10	57.24	507.03	2.50	0.43	2.93	2.71
0044	0173	12.77	218.54	484.41	1.00	0.11	1.11	0.97	11.13	197.04	475.78	1.08	0.13	1.21	1.06
0047	0174	57.94	143.15	405.28	3.05	0.77	3.83	3.36	54.57	151.52	386.82	2.84	0.80	3.64	3.19
0106	0335	5.96	132.89	371.90	1.21	0.11	1.32	1.41	5.81	101.31	376.05	1.63	0.24	1.88	2.00
0143	0398	8.86	184.17	433.98	0.49	0.04	0.54	0.48	8.62	168.32	398.32	0.44	0.03	0.48	0.42
0058	0223	6.66	134.92	554.17	1.92	0.20	2.12	2.09	6.21	129.80	535.09	1.68	0.17	1.86	1.83
0058	0229R	7.36	135.82	581.02	1.97	0.38	2.35	2.16	6.41	126.55	552.21	1.82	0.26	2.08	1.92
0090	0282	10.05	136.34	465.14	3.12	0.41	3.53	3.29	9.36	137.26	446.27	2.75	0.30	3.05	2.84
0096	0312	9.16	136.76	452.54	2.22	0.48	2.70	2.49	9.18	137.66	430.22	2.08	0.30	2.39	2.20
0178	0473	6.33	65.73	452.23	2.02	0.28	2.30	2.16	5.46	55.55	438.80	1.97	0.27	2.25	2.11
0002	0233	9.23	96.20	413.40	3.23	0.98	4.22	3.90	8.54	98.92	404.69	2.85	0.86	3.72	3.44
0181	0479	6.45	97.65	466.26	3.08	1.06	4.15	4.34	6.43	97.25	447.96	3.07	0.89	3.97	4.15
0161	0437	5.03	57.30	755.15	4.86	1.35	6.22	5.99	3.82	48.19	733.40	4.98	1.49	6.48	6.24
0038	0158	2.85	31.64	663.81	4.25	1.30	5.55	4.79	2.60	20.51	651.77	4.34	1.79	6.14	5.31
0056	0217	4.82	69.39	628.51	4.15	1.03	5.18	5.24	4.45	60.80	604.29	4.12	1.01	5.14	5.19
0119	0352	12.56	135.11	470.27	1.80	0.40	2.20	2.59	12.84	126.70	459.55	1.86	0.37	2.24	2.64
0082	0273	2.75	36.68	599.35	2.69	0.50	3.20	3.02	2.71	31.64	636.92	3.02	0.50	3.52	3.32
0078	0256	9.23	158.84	644.78	3.06	0.59	3.66	3.50	8.43	135.86	626.01	3.20	0.68	3.88	3.71
0094	0325	4.90	36.02	442.06	2.88	1.16	4.04	3.68	4.22	30.01	409.58	3.05	1.22	4.28	3.90
0182	0477	2.33	43.63	872.43	3.13	0.66	3.79	3.81	2.00	36.54	847.72	3.07	0.72	3.79	3.82
0104	0316	3.39	54.79	668.76	1.77	0.19	1.97	1.81	3.45	53.14	644.88	1.91	0.34	2.26	2.08
0104	0322R	4.49	68.52	758.22	1.89	0.45	2.34	2.62	3.58	57.09	725.23	2.00	0.59	2.60	2.90
0022	0135	6.02	118.81	604.44	2.41	0.48	2.90	2.71	4.86	87.53	592.57	2.65	0.65	3.31	3.10
0148	0410	6.26	105.29	529.16	2.68	0.42	3.10	2.82	4.01	57.79	531.12	3.11	0.64	3.75	3.42
0077	0255	7.67	95.94	495.83	2.18	0.48	2.66	2.54	7.03	88.12	496.27	2.34	0.45	2.79	2.66
0054	0211	7.25	71.03	616.89	4.99	1.62	6.62	6.02	7.02	67.92	600.15	4.97	1.64	6.62	6.02
0173	0463	11.29	173.82	514.84	2.46	0.43	2.89	2.80	11.16	157.25	494.93	2.58	0.45	3.04	2.95
0101	0321	1.34	17.78	174.27	1.28	0.13	1.42	1.39	1.31	15.11	163.10	1.24	0.15	1.40	1.37
0156	0456	9.88	131.53	363.16	1.13	0.10	1.24	1.20	9.86	128.97	344.82	0.95	0.06	1.02	0.98
0183	0478	6.11	54.16	488.12	3.55	1.13	4.69	4.68	5.74	46.74	469.99	3.61	1.05	4.66	4.66
0179	0482	9.62	71.06	663.27	4.26	1.27	5.53	6.29	9.39	63.96	633.75	4.25	1.22	5.48	6.23
0159	0433	7.09	70.68	694.62	4.59	1.57	6.16	5.97	6.42	59.16	670.39	4.44	1.73	6.17	5.98
0126	0374	3.27	60.52	606.11	3.09	0.81	3.91	3.73	2.78	51.05	578.12	2.84	0.74	3.58	3.42
0128	0367	5.21	76.76	671.35	4.23	1.27	5.51	5.43	4.30	60.78	660.68	4.43	1.37	5.80	5.71
0129	0369	6.83	73.44	656.70	5.17	2.98	8.16	10.02	5.84	64.14	589.59	5.24	3.08	8.32	10.23
0036	0148	4.58	50.52	578.11	5.51	2.40	7.92	7.12	3.72	35.04	574.85	5.68	2.62	8.31	7.47
0043	0170	2.81	38.03	536.18	3.52	0.83	4.36	3.86	2.18	23.06	524.60	3.57	0.93	4.50	3.98
0158	0431	7.41	131.97	540.95	1.91	0.37	2.28	2.28	5.98	109.68	538.24	1.99	0.50	2.49	2.49
0107	0334	6.24	66.97	608.65	3.51	1.39	4.91	4.69	4.97	44.08	578.29	3.95	1.49	5.44	5.21
0079	0261	11.25	142.83	480.47	2.02	0.32	2.35	2.16	9.17	118.09	481.38	2.20	0.49	2.69	2.48
0138	0393	17.47	56.22	341.98	2.93	0.34	3.27	2.85	14.35	51.35	327.25	2.90	0.32	3.22	2.80
0118	0355	5.02	81.23	676.79	2.49	0.62	3.11	2.95	4.42	71.29	665.90	2.55	0.57	3.12	2.96
0027	0137	5.90	124.74	616.60	2.01	0.34	2.36	2.39	5.29	108.19	601.47	2.17	0.45	2.63	2.66
0029	0142	9.03	150.82	599.96	3.19	1.13	4.32	3.90	6.53	114.60	651.25	3.53	0.75	4.29	3.87
0147	0409	4.27	69.99	556.22	1.89	0.23	2.12	2.15	3.76	57.36	525.26	1.93	0.26	2.20	2.23

CAR#	RUN#	WEIGHTED MASS - 1972 PROCEDURE							WEIGHTED MASS - 1975 PROCEDURE						
		HC	CO	CO2	NO	NO2	NOX	NOXC	HC	CO	CO2	NO	NO2	NOX	NOXC
0018	0130	5.53	61.17	661.60	3.99	1.53	5.53	5.13	5.07	52.36	632.79	3.75	1.58	5.34	4.95
0028	0144	4.06	64.52	578.84	3.94	1.11	5.06	4.77	3.61	52.85	564.31	4.11	1.13	5.24	4.95
0084	0272	5.74	93.54	411.72	2.97	0.78	3.75	3.37	5.71	83.20	582.22	3.03	0.65	3.69	3.32
0150	0413	6.37	72.17	560.40	4.09	1.27	5.37	5.57	6.51	64.85	541.90	4.07	1.30	5.38	5.59
0034	0149	12.78	127.44	651.87	3.19	0.84	4.03	3.70	8.64	98.88	678.38	3.31	0.78	4.10	3.76
0155	0428	8.56	84.60	608.59	3.45	0.93	4.38	4.02	7.30	77.20	569.86	3.32	0.86	4.19	3.84
0103	0319	6.75	72.44	381.44	0.83	1.33	2.16	2.08	5.89	68.92	361.67	1.42	0.78	2.20	2.12
0123	0361	6.55	63.77	610.96	4.58	2.06	6.65	6.54	6.02	60.16	578.91	4.55	1.85	6.41	6.31
0171	0460	10.91	148.95	584.69	2.07	0.43	2.50	2.44	11.40	145.87	554.43	1.83	0.35	2.19	2.13
0180	0490	13.03	104.34	384.08	1.84	0.25	2.09	2.14	13.26	93.75	374.41	1.94	0.28	2.23	2.28
0177	0474	5.31	63.14	528.43	2.41	0.28	2.69	2.78	4.70	61.80	508.06	2.40	0.32	2.72	2.81
0163	0435	3.06	26.21	718.69	3.67	0.76	4.44	4.46	2.63	18.17	703.15	3.79	0.97	4.77	4.80
0105	0331	4.50	79.59	557.36	2.87	0.82	3.70	3.91	3.81	55.65	533.93	2.88	0.78	3.66	3.87
0142	0397	5.24	58.12	481.27	4.21	1.51	5.72	7.30	4.81	51.33	463.43	4.12	1.54	5.66	7.22
0045	0194	36.54	172.59	423.94	0.60	0.05	0.66	0.54	35.95	169.85	397.22	0.54	0.04	0.59	0.48
0073	0264	5.86	50.86	453.23	2.93	0.93	3.86	3.59	4.59	37.52	436.24	2.74	0.77	3.51	3.26
0141	0396	7.58	113.73	394.70	2.54	0.63	3.17	3.20	6.70	112.25	378.99	2.34	0.51	2.86	2.97
0157	0424	6.60	108.19	417.13	2.05	0.24	2.29	2.25	7.03	102.11	397.77	1.92	0.20	2.12	2.08
0102	0314	3.05	16.34	371.04	2.63	0.91	3.55	3.62	2.39	16.31	365.01	2.57	0.81	3.38	3.45
0098	0329	5.90	55.63	334.92	1.64	0.20	1.85	1.67	4.72	51.66	327.82	1.67	0.22	1.90	1.71
0032	0154	4.06	40.97	312.84	2.38	0.58	3.47	3.00	3.61	33.46	308.29	2.77	0.54	3.32	2.87
0074	0252	14.59	23.42	391.87	3.51	1.10	4.61	3.87	12.70	19.92	384.26	3.41	0.96	4.38	3.67
0019	0133	5.33	55.21	292.65	2.33	0.57	2.91	2.74	4.92	53.03	288.32	2.20	0.43	2.64	2.49
0035	0147	6.35	90.33	239.85	2.62	1.27	3.89	3.73	6.35	90.50	278.24	2.63	0.94	3.58	3.48
0053	0212	11.23	115.56	254.72	1.64	0.25	1.89	1.77	8.48	113.31	246.22	1.46	0.17	1.64	1.53
0053	02162	10.42	117.13	250.30	1.54	0.18	1.73	1.69	10.06	114.68	243.44	1.36	0.14	1.51	1.47
0160	0432	5.57	51.93	334.60	1.40	0.16	1.56	1.78	5.92	49.99	325.16	1.28	0.10	1.38	1.59
0120	0358	4.66	56.43	276.85	1.80	0.19	2.00	1.80	4.15	50.54	271.73	1.72	0.18	1.90	1.72
0149	0412	8.15	65.98	290.83	1.74	0.24	1.98	1.97	7.10	61.39	289.75	1.72	0.30	2.03	2.01
0052	0207	56.27	69.89	286.40	3.52	1.04	4.56	4.32	54.74	66.33	282.40	3.44	1.02	4.47	4.23
0052	02578	6.56	58.68	364.14	3.66	0.92	4.58	4.24	6.14	54.73	357.50	3.32	1.11	4.44	4.10
0057	0228	11.86	80.53	241.42	1.82	0.30	2.12	1.97	11.72	80.04	235.54	1.75	0.25	2.00	1.86
0059	0234	2.66	58.63	334.96	2.06	0.26	2.32	2.16	2.62	56.81	329.49	2.03	0.24	2.27	2.11
0051	0197	2.88	20.83	378.96	4.70	1.84	6.54	5.27	2.73	20.42	367.72	4.65	1.86	6.51	5.25
0116	0347	16.37	84.23	200.78	0.83	0.12	0.95	1.03	15.08	81.23	192.32	0.78	0.09	0.88	0.96

CAR#	RUN#	WEIGHTED MASS - 1972 PROCEDURE HC	CO	CO2	NO	NO2	NOX	NOXC	WEIGHTED MASS - 1975 PROCEDURE HC	CO	CO2	NO	NO2	NOX	NOXC
0163	0173	5.22	63.37	668.53	3.03	0.17	3.21	2.64	4.45	50.12	646.05	2.93	0.22	3.17	2.61
0019	0019	2.01	87.78	491.07	0.99	0.28	1.28	1.00	1.84	75.88	500.29	1.08	0.34	1.43	1.12
0081	0081	4.30	76.34	648.59	3.44	0.20	3.64	2.96	3.66	63.75	629.64	3.37	0.20	3.57	2.90
0040	0040	7.34	162.04	504.30	0.58	0.04	0.63	0.50	7.34	142.36	541.93	0.50	0.03	0.54	0.43
0039	0039	10.01	124.08	456.69	1.84	0.11	1.95	1.65	8.18	112.77	470.78	2.33	0.35	2.69	2.28
0168	0179	23.19	149.73	429.40	1.07	0.13	1.20	1.02	21.61	206.61	406.64	0.90	0.11	1.01	0.86
0083	0083	8.95	113.04	451.28	2.72	0.35	3.08	2.58	7.99	99.76	420.50	2.68	0.23	2.91	2.44
0068	0068	9.34	136.76	378.38	1.59	0.10	1.70	1.41	8.84	120.53	379.40	1.83	0.17	2.00	1.66
0135	0137	10.75	168.62	519.54	1.53	0.10	1.64	1.30	10.23	143.90	503.45	1.65	0.18	1.83	1.46
0051	0051	4.74	149.71	832.87	1.83	0.17	2.01	1.64	3.68	133.43	797.24	1.31	0.51	1.82	1.49
0048	0048	7.00	181.96	728.91	3.25	0.36	3.61	2.92	6.41	176.97	715.74	3.47	0.43	3.90	3.16
0085	0085	6.60	128.84	771.70	2.82	0.36	3.18	2.74	5.95	122.97	742.41	2.64	0.30	2.95	2.54
0042	0042	7.37	173.57	574.25	3.58	0.56	4.15	3.30	6.68	113.07	546.94	3.40	0.51	3.92	3.12
0158	0166	7.20	133.57	597.04	3.92	0.65	4.57	3.73	6.69	119.45	566.14	3.79	0.56	4.35	3.55
0159	0167R	6.89	129.52	596.65	3.54	1.07	4.62	3.94	6.44	123.77	563.64	3.51	1.00	4.52	3.85
0061	0061	5.89	165.36	696.96	2.74	0.16	2.90	2.39	5.45	152.56	675.91	3.30	0.39	3.70	3.03
0114	0114	4.51	34.08	621.34	8.81	0.25	9.06	7.64	4.11	28.86	616.38	8.94	0.32	9.27	7.81
0140	0142	12.35	139.09	536.07	1.94	0.12	2.06	1.69	9.17	112.25	524.60	2.02	0.21	2.24	1.84
0145	0149	8.31	124.73	571.58	2.04	0.39	2.44	1.99	6.35	98.82	550.50	2.12	0.48	2.61	2.14
0155	0162	5.20	66.98	681.58	4.07	1.37	5.45	4.44	4.35	46.33	667.78	4.00	1.58	5.59	4.56
0005	0005	5.38	82.18	536.75	2.66	0.17	2.84	2.24	4.56	67.01	511.37	2.32	0.29	2.61	2.06
0017	0017	9.53	155.97	445.56	1.18	0.10	1.28	1.01	6.59	124.16	442.09	1.24	0.08	1.32	1.04
0100	0100	8.69	113.09	598.02	4.37	0.95	5.32	4.40	8.37	116.04	598.76	4.32	0.66	4.99	4.12
0130	0132	10.66	166.77	574.01	1.92	0.23	2.15	1.63	7.52	126.22	533.18	2.11	0.28	2.40	1.87
0010	0010	5.73	75.53	508.43	2.66	0.40	3.07	2.48	4.00	51.63	505.33	2.62	0.41	3.04	2.45
0012	0012	9.93	169.17	305.26	1.25	0.10	1.14	0.91	7.55	126.16	390.92	1.33	0.06	1.28	1.02
0027	0027	5.28	80.34	632.72	3.58	1.19	4.77	3.83	4.20	60.09	611.09	3.71	1.23	4.95	3.96
0138	0140	22.23	231.21	505.95	1.74	0.05	1.79	1.43	14.46	181.09	489.84	1.95	0.07	2.02	1.62
0138	0146R	23.70	235.87	509.13	1.83	0.06	1.89	1.58	15.29	195.51	498.46	1.95	0.08	2.03	1.69
0021	0021	11.01	145.71	453.69	1.57	0.30	1.87	1.48	9.61	131.39	437.03	1.62	0.22	1.85	1.47
0031	0031	14.44	321.05	882.41	4.57	2.54	7.11	5.78	11.54	268.67	699.15	3.01	1.44	4.45	3.62
0032	0032	8.41	116.95	424.67	1.72	0.04	1.72	1.39	7.69	98.41	411.40	1.85	0.06	1.89	1.53
0053	0053	5.73	70.74	496.22	2.29	0.06	2.33	1.91	5.02	66.86	484.21	2.35	0.04	2.37	1.94
0023	0023	8.52	129.25	453.52	1.52	0.05	1.58	1.31	7.19	120.82	435.75	1.39	0.02	1.42	1.18
0025	0025	6.41	92.80	405.06	2.34	0.26	2.60	2.18	5.64	89.14	491.76	2.15	0.21	2.37	1.98
0089	0089	10.43	128.23	463.42	1.65	0.09	1.75	1.44	9.17	120.54	436.36	1.59	0.06	1.65	1.36
0112	0112	11.80	178.59	542.57	2.12	0.09	2.21	1.91	10.57	158.16	507.26	1.98	0.06	2.05	1.77
0063	0063	7.84	101.95	429.86	2.71	0.11	2.83	2.32	6.12	78.35	401.31	2.80	0.14	2.94	2.42
0102	0102	5.51	71.73	399.98	2.60	0.16	2.76	2.33	4.56	72.19	382.47	2.51	0.12	2.64	2.22
0131	0133	13.25	121.95	475.08	3.98	0.80	4.78	3.91	11.30	97.18	463.95	4.11	0.90	5.01	4.09
0002	0002	7.43	45.91	447.48	3.12	0.36	3.48	2.69	6.45	31.68	444.01	3.38	0.48	3.87	2.99
0004	0004	8.31	92.38	494.96	2.14	0.41	2.55	2.00	6.62	84.09	470.54	1.92	0.35	2.27	1.78
0038	0038	7.55	99.36	309.57	1.13	0.05	1.19	0.96	6.46	99.35	308.68	1.20	0.05	1.25	1.01
0129	0131	12.49	104.31	562.32	1.11	0.08	1.19	1.01	10.21	104.55	560.08	1.12	0.07	1.19	1.00
0058	0058	7.46	90.49	484.57	2.54	0.26	2.80	2.28	6.86	84.01	457.98	2.41	0.17	2.58	2.10
0075	0075	21.31	299.29	393.60	0.68	0.06	0.74	0.61	16.70	235.95	404.58	1.15	0.29	1.44	1.19
0113	0113	7.21	83.80	434.72	3.51	0.22	3.73	3.08	6.10	73.93	416.05	3.58	0.19	3.78	3.11
0118	0118	9.20	117.19	453.69	2.37	0.37	2.74	2.26	8.74	113.40	448.58	2.34	0.34	2.69	2.22
0062	0062	10.65	105.90	329.89	1.28	0.08	1.37	1.11	9.44	98.31	302.12	1.10	0.06	1.17	0.95
0092	0092	10.08	31.22	403.71	4.37	0.68	5.05	4.18	10.62	30.78	392.41	4.47	0.66	5.14	4.25

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES — DENVER — FEDERAL CYCLE RESULTS IN GRAMS PER MILE —

CAR#	RUN#	WEIGHTED MASS - 1972 PROCEDURE							WEIGHTED MASS - 1975 PROCEDURE						
		HC	CO	CO2	NO	NO2	NOX	NOXC	HC	CO	CO2	NO	NO2	NOX	NOXC
0101	0101	8.25	82.24	527.54	2.76	0.70	3.47	2.88	7.77	83.57	481.27	2.63	0.54	3.17	2.63
0107	0107	11.85	165.69	410.29	1.73	0.08	1.81	1.50	11.01	166.18	410.05	1.69	0.13	1.82	1.50
0022	0022	6.42	104.92	437.66	1.60	0.02	1.57	1.26	5.94	98.09	482.48	1.45	0.03	1.46	1.17
0109	0109	4.88	39.28	441.27	4.25	1.10	5.36	4.50	4.50	36.83	430.38	4.20	1.05	5.26	4.41
0106	0106	5.68	58.93	341.45	1.93	0.07	2.00	1.72	5.94	58.38	328.95	1.83	0.06	1.88	1.61
0157	0164	37.03	144.25	355.59	0.87	0.13	1.00	0.85	34.47	134.21	350.83	0.88	0.10	0.98	0.83
0125	0126	45.49	238.59	443.79	1.13	0.03	1.13	0.90	42.04	202.49	428.80	1.37	0.06	1.42	1.12
0084	0084	17.26	115.39	377.17	1.87	0.14	1.96	1.65	16.19	121.54	353.19	1.52	0.10	1.57	1.32
0171	0184	8.84	107.85	547.16	2.73	0.36	3.09	2.67	8.07	104.21	519.98	2.61	0.32	2.93	2.53
0123	0124	14.43	166.49	388.20	1.69	0.40	2.09	1.74	13.91	171.33	375.06	1.43	0.29	1.72	1.43
0141	0143	7.55	150.35	669.30	1.84	0.61	2.46	2.04	6.32	133.43	654.07	1.88	0.63	2.52	2.09
0166	0176	10.16	130.88	533.03	2.83	0.38	3.22	2.85	9.22	131.56	515.66	2.78	0.35	3.14	2.78
0166	0178R	8.35	112.90	575.58	3.80	0.89	4.70	3.92	7.79	112.90	557.14	3.70	0.75	4.46	3.73
0055	0055	13.39	209.22	442.69	1.38	0.06	1.44	1.09	8.83	140.97	434.96	1.62	0.05	1.65	1.34
0069	0069	19.03	210.67	490.36	2.21	0.16	2.37	1.96	12.88	156.50	478.97	2.50	0.22	2.72	2.25
0167	0177	9.58	169.30	573.47	3.33	0.70	3.73	3.20	7.91	150.64	550.16	2.86	0.82	3.68	3.16
0167	0182R	8.33	155.61	566.72	2.98	0.39	3.37	2.80	7.54	150.67	536.43	2.80	0.29	3.09	2.57
0008	0008	5.35	113.31	370.93	3.07	0.66	3.74	3.01	4.09	81.70	374.95	3.50	0.93	4.43	3.58
0014	0014	5.21	104.41	431.06	2.13	0.17	2.31	1.88	4.59	87.59	427.48	2.18	0.26	2.44	1.98
0066	0066	20.67	225.03	467.79	1.49	0.20	1.68	1.34	12.92	175.91	466.44	1.64	0.20	1.85	1.48
0059	0059	12.93	222.38	470.86	1.40	0.32	1.73	1.39	10.36	183.34	463.26	1.55	0.28	1.84	1.48
0088	0088	8.58	112.03	465.02	2.43	0.06	2.50	2.09	7.80	118.22	444.00	2.01	0.07	2.08	1.74
0160	0169	8.74	159.16	357.60	1.99	0.21	2.20	1.82	7.98	149.66	344.57	1.93	0.22	2.15	1.78
0160	0172R	14.95	281.65	310.88	0.65	0.02	0.68	0.55	12.70	265.64	294.39	0.59	0.02	0.61	0.50
0086	0086	6.60	62.42	750.89	4.24	1.06	5.30	4.38	6.03	57.47	729.94	4.18	1.02	5.20	4.30
0095	0095	7.26	58.63	591.60	5.15	0.91	6.07	5.09	6.82	45.77	591.25	5.57	0.71	6.28	5.28
0152	0156	6.17	111.87	610.63	3.48	1.51	4.99	4.32	5.66	100.04	592.02	3.44	1.30	4.74	4.11
0172	0185	5.40	99.21	628.73	3.53	0.46	3.90	3.37	4.84	85.65	605.86	3.49	0.36	3.86	3.33
0007	0007	3.47	47.63	444.75	4.83	1.08	5.92	4.69	3.26	43.95	428.35	4.54	1.21	5.75	4.55
0064	0064	6.81	97.98	595.24	4.24	0.62	4.86	3.93	6.51	88.87	554.94	4.02	0.49	4.51	3.65
0071	0071	11.19	91.77	502.32	2.42	0.26	2.68	2.33	9.70	81.58	496.87	2.42	0.49	2.92	2.53
0122	0122	7.83	111.33	555.06	4.33	0.68	5.01	4.17	7.05	91.64	574.17	4.35	0.90	5.26	4.33
0122	0123R	7.48	99.02	632.59	4.69	0.57	5.27	4.33	6.59	74.25	605.87	5.19	0.85	6.05	4.98
0013	0013	5.44	87.56	454.92	3.16	0.39	3.55	2.78	4.79	63.32	455.97	3.49	0.76	4.26	3.33
0126	0128	7.98	51.43	563.34	3.78	0.20	3.99	3.09	6.98	44.08	551.97	3.50	0.30	3.81	2.95
0136	0138	9.56	82.45	595.42	3.81	2.12	5.93	4.77	8.35	81.69	565.86	3.75	1.82	5.57	4.49
0006	0006	8.55	147.99	595.83	2.86	0.30	3.11	2.48	7.77	126.46	576.71	3.50	0.56	4.07	3.25
0047	0047	4.99	52.89	572.79	3.58	0.80	4.38	3.52	4.88	41.41	556.73	2.61	0.52	3.13	2.51
0060	0060	9.00	134.42	519.18	2.44	0.11	2.55	2.21	7.85	117.90	481.95	2.31	0.15	2.47	2.14
0057	0057	8.11	196.34	499.75	1.43	0.02	1.46	1.21	7.37	182.28	479.82	1.34	0.03	1.37	1.14
0074	0074	18.27	171.58	422.08	1.39	0.06	1.45	1.20	17.03	169.68	410.03	1.34	0.03	1.37	1.14
0082	0082	12.57	141.21	424.02	3.85	0.28	4.15	3.38	12.20	141.04	403.33	3.47	0.29	3.74	3.05
0033	0033	7.19	103.12	435.17	2.52	0.11	2.64	2.13	6.13	84.70	398.10	2.72	0.22	2.95	2.38
0034	0034	17.06	118.65	357.33	1.07	0.03	1.11	0.89	16.86	115.91	349.16	1.00	0.02	1.02	0.83
0035	0035	11.24	217.14	479.23	0.86	0.07	0.93	0.82	9.90	207.48	453.12	0.71	0.07	0.79	0.69
0090	0090	9.91	233.06	507.87	0.80	1.49	2.30	1.87	8.52	211.90	475.19	0.75	0.65	1.41	1.15
0070	0070	13.57	141.33	372.79	1.67	0.45	1.44	1.21	12.11	131.61	357.00	1.73	0.41	1.46	1.22
0134	0136	16.52	124.73	355.00	1.66	0.14	1.81	1.45	14.30	123.68	344.58	1.50	0.17	1.68	1.34
0143	0145	9.53	174.01	373.22	1.28	0.23	1.51	1.21	9.92	185.09	347.34	1.03	0.11	1.15	0.92
0143	0152R	8.55	149.14	324.83	2.50	0.30	2.81	2.33	8.36	140.39	347.41	1.59	0.17	1.77	1.46

CAR#	RUN#	WEIGHTED MASS - 1972 PROCEDURE HC	CO	CO2	NO	NO2	NOX	NOXC	WEIGHTED MASS - 1975 PROCEDURE HC	CO	CO2	NO	NO2	NOX	NOXC
0065	0065	6.42	74.56	414.64	2.43	0.62	3.05	2.46	6.12	71.17	401.82	2.36	0.53	2.90	2.34
0099	0099	12.36	211.25	496.54	2.01	0.07	2.08	1.49	10.43	186.54	493.78	2.13	0.05	2.19	1.78
0154	0161	8.91	77.15	450.93	3.23	0.35	3.59	3.05	8.00	72.93	436.83	3.27	0.39	3.66	3.11
0154	0165R	8.75	80.15	450.28	3.19	0.34	3.53	2.93	7.95	75.52	427.45	3.12	0.33	3.45	2.87
0045	0045	9.05	135.64	545.37	2.66	0.16	2.82	2.38	8.10	130.84	527.77	2.47	0.18	2.65	2.24
0094	0094	9.36	63.30	469.98	4.77	0.86	5.64	4.58	7.53	64.88	465.17	4.96	1.00	5.96	4.84
0150	0156	12.39	113.35	539.28	3.63	0.75	4.38	3.50	9.42	100.31	520.12	3.75	0.73	4.48	3.58
0159	0168	7.83	146.40	540.65	3.29	0.78	4.07	3.42	7.31	137.54	517.20	2.76	0.60	3.36	2.82
0149	0155	5.66	86.56	322.48	1.54	0.22	1.76	1.40	5.63	93.30	303.65	1.29	0.12	1.42	1.13
0087	0087	6.15	88.62	345.47	1.18	0.28	1.46	1.23	5.64	97.82	333.40	1.07	0.20	1.27	1.07
0165	0175	9.45	90.34	399.80	2.84	0.59	3.44	2.85	8.34	83.45	386.76	2.82	0.53	3.35	2.77
0104	0104	15.22	133.09	578.41	3.42	0.34	3.77	3.06	13.80	104.51	560.44	3.52	0.41	3.93	3.20
0093	0093	16.50	130.06	653.29	3.93	0.20	4.13	3.39	15.14	128.52	631.44	3.75	0.44	4.20	3.44
0078	0078	7.71	63.24	540.36	3.65	0.60	4.26	3.50	5.86	54.09	618.92	3.55	0.57	4.12	3.39
0091	0091	6.36	50.64	518.21	4.74	0.52	5.27	4.42	6.17	43.98	537.10	4.96	0.87	5.83	4.88
0026	0026	5.68	61.88	496.39	1.88	0.03	1.92	1.58	4.52	51.84	468.98	1.87	0.02	1.90	1.65
0041	0041	7.89	121.55	392.85	1.82	0.15	1.98	1.53	6.83	119.50	379.81	1.72	0.09	1.81	1.45
0128	0161	9.48	139.00	427.52	3.72	0.58	4.30	3.65	8.96	143.03	425.93	3.34	0.43	3.77	3.20
0098	0098	23.65	307.35	521.79	1.59	0.12	1.71	1.37	19.30	276.90	498.69	2.04	0.14	2.18	1.75
0169	0180	10.67	161.46	573.53	1.96	0.08	2.05	1.95	8.65	142.18	536.99	1.85	0.10	1.96	1.86
0016	0016	3.59	65.57	444.00	2.68	0.26	2.94	2.33	3.24	71.82	614.57	2.59	0.26	2.86	2.26
0009	0009	4.28	114.08	665.45	2.10	0.83	2.94	2.32	4.12	105.17	646.70	2.10	0.80	2.91	2.30
0137	0137	9.10	90.57	576.91	2.72	0.35	3.08	2.40	6.61	68.33	562.63	2.56	0.40	2.97	2.31
0096	0096	9.99	133.19	581.14	2.53	0.32	2.85	2.40	7.46	110.30	558.46	2.52	0.29	2.82	2.37
0029	0029	9.70	125.82	510.74	2.83	0.56	2.89	2.30	8.71	115.36	494.86	2.62	0.49	3.12	2.47
0054	0054	13.97	135.33	495.97	1.95	0.09	2.01	1.64	11.49	140.29	480.72	1.94	0.16	2.07	1.70
0108	0108	10.56	156.03	488.18	1.54	0.06	1.60	1.33	9.75	145.83	467.27	1.50	0.06	1.56	1.30
0170	0183	14.56	253.44	497.05	1.26	0.14	1.40	1.19	13.65	253.72	481.58	1.04	0.10	1.15	0.97
0077	0077	14.36	147.53	438.85	2.16	0.17	2.33	1.93	13.72	147.49	424.15	1.83	0.13	1.96	1.62
0161	0170	9.32	116.17	353.66	2.24	0.22	2.46	2.00	6.02	99.35	369.51	2.39	0.26	2.65	2.16
0116	0116	20.59	82.93	473.36	1.98	0.12	2.11	1.79	19.43	89.27	450.52	1.78	0.11	1.89	1.60
0015	0015	5.37	42.81	526.18	3.63	0.67	4.31	3.42	4.83	28.95	492.97	3.74	0.73	4.48	3.56
0153	0160	14.68	211.14	557.05	0.96	0.03	1.00	0.85	13.49	147.84	544.87	1.04	0.04	1.08	0.92
0046	0046	9.67	155.46	478.88	1.90	0.10	2.00	1.63	8.49	139.64	460.13	1.88	0.14	2.03	1.65
0151	0157	12.19	134.22	514.63	2.93	0.37	3.35	2.66	10.68	112.14	507.82	3.46	0.51	3.98	3.16
0151	0159R	7.60	97.30	530.94	2.28	0.32	2.61	2.19	6.97	88.39	528.13	1.95	0.26	2.22	1.86
0144	0147	7.93	271.42	436.20	0.48	0.07	0.55	0.46	9.44	220.50	418.27	0.51	0.07	0.58	0.48
0144	0149R	18.89	227.64	413.24	0.83	0.20	1.01	0.82	12.64	190.71	399.03	0.86	0.18	1.04	0.85
0056	0056	11.37	222.41	446.59	1.72	0.08	1.80	1.44	9.24	171.26	433.03	1.97	0.12	2.09	1.68
0115	0115	8.70	97.24	281.61	1.84	0.11	1.95	1.63	7.22	92.40	278.44	1.70	0.07	1.78	1.49
0139	0141	27.34	222.82	381.27	0.53	0.01	0.54	0.43	25.69	211.48	365.30	0.50	0.01	0.52	0.41
0173	0186	7.37	100.64	477.18	4.63	1.08	5.61	4.72	6.94	96.17	454.30	4.04	0.82	4.87	4.10
0132	0134	6.95	95.92	692.65	3.34	0.59	3.93	3.14	6.01	94.30	662.50	3.29	0.61	3.89	3.12
0011	0011	7.39	92.31	560.22	3.43	0.70	4.13	3.26	6.30	64.58	544.24	3.56	0.62	4.19	3.31
0162	0171	11.17	179.44	585.40	2.27	0.19	2.46	2.00	7.96	139.46	577.49	2.47	0.29	2.76	2.24
0003	0003	9.64	65.43	656.51	3.50	0.84	4.35	3.38	8.16	57.42	635.92	3.83	0.65	4.49	3.50
0018	0018	3.76	59.04	646.45	2.37	0.12	2.50	1.97	3.27	44.02	607.77	2.37	0.17	2.54	2.01
0028	0028	6.24	74.44	547.33	3.65	0.70	4.35	3.56	5.70	69.96	543.08	3.72	0.76	4.48	3.67
0037	0037	11.62	145.81	505.79	1.92	0.18	2.11	1.73	11.43	124.04	488.52	2.02	0.16	2.18	1.80
0124	0125	7.74	107.72	477.11	3.78	0.44	4.22	3.51	7.14	107.79	472.48	3.70	0.41	4.11	3.42

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES — DENVER — FEDERAL CYCLE RESULTS IN GRAMS PER MILE —

CAR#	RUN#	WEIGHTED MASS - 1972 PROCEDURE							WEIGHTED MASS - 1975 PROCEDURE						
		HC	CO	CO2	NO	NO2	NOX	NOXC	HC	CO	CO2	NO	NO2	NOX	NOXC
0067	0067	7.81	150.57	529.26	1.85	0.03	1.94	1.61	7.31	140.43	500.82	1.71	0.06	1.77	1.47
0156	0163	7.54	62.55	497.05	4.05	2.95	7.00	6.67	7.04	57.14	479.37	5.02	3.08	8.10	6.83
0120	0120	18.86	204.45	329.71	0.48	0.04	0.53	0.43	17.22	199.41	312.04	0.41	0.04	0.46	0.38
0072	0072	10.31	129.81	449.91	2.17	0.10	2.28	1.86	9.66	125.72	427.81	2.07	0.20	2.27	1.86
0079	0079	9.75	131.08	520.19	1.73	0.47	2.21	1.73	8.92	125.70	497.05	1.77	0.26	2.04	1.64
0001	0001	5.08	223.38	475.99	1.74	0.22	1.97	1.53	6.91	203.83	460.96	1.70	0.19	1.90	1.47
0105	0105	7.00	114.08	412.23	1.76	0.03	1.77	1.49	6.11	99.35	390.48	1.54	0.03	1.54	1.30
0148	0154	6.98	98.18	352.99	2.16	0.19	2.36	1.89	5.67	96.21	335.97	2.10	0.13	2.24	1.79
0133	0135	10.32	164.63	407.62	1.26	0.13	1.40	1.11	8.82	159.02	401.57	1.16	0.15	1.32	1.04
0121	0121	13.07	125.77	329.97	1.78	0.03	1.81	1.49	11.14	116.24	341.96	2.14	0.06	2.21	1.82
0052	0052	16.84	167.82	315.59	0.88	0.06	0.89	0.74	15.19	169.05	299.26	0.76	0.04	0.74	0.62
0044	0044	9.35	167.34	291.96	0.59	0.03	0.62	0.50	7.94	155.97	277.79	0.59	0.03	0.62	0.50
0146	0150	11.22	143.02	307.63	1.01	0.07	1.08	0.86	10.68	145.22	287.78	0.80	0.06	0.86	0.68
0110	0110	5.52	82.04	319.37	1.61	0.02	1.63	1.30	4.46	72.79	313.59	1.53	0.02	1.56	1.24
0147	0151	4.40	54.47	295.76	2.48	0.13	2.62	2.06	4.14	49.65	291.82	2.41	0.15	2.56	2.00
0147	0153R	4.27	46.58	305.00	2.71	0.76	3.47	2.82	3.76	41.57	291.05	2.58	0.61	3.20	2.59
0020	0020	1.29	34.50	268.92	0.80	0.08	0.88	0.66	1.02	28.64	268.01	0.79	0.08	0.87	0.66
0111	0111	5.80	73.32	283.40	1.49	0.12	1.62	1.36	4.85	71.52	266.39	1.17	0.10	1.28	1.07
0117	0117	11.52	84.44	291.56	1.91	0.05	1.97	1.61	10.63	81.02	283.31	1.72	0.06	1.78	1.46
0142	0144	6.87	61.62	166.06	1.27	0.09	1.36	1.08	6.58	60.98	161.14	1.21	0.08	1.30	1.03
0036	0036	7.83	88.54	204.12	0.79	0.03	0.82	0.67	6.48	82.67	210.36	0.74	0.03	0.78	0.63
0097	0097	7.37	96.91	302.89	1.81	0.05	1.87	1.57	7.77	105.04	294.68	1.59	0.03	1.62	1.36
0080	0080	9.02	74.19	224.42	1.27	0.14	1.41	1.17	7.64	73.84	224.54	1.33	0.11	1.44	1.20
0050	0050	5.99	67.77	229.09	1.40	0.02	1.41	1.15	5.47	63.61	214.43	1.23	0.02	1.23	1.00
0103	0103	7.38	100.51	305.30	1.14	0.02	1.17	0.95	6.58	100.93	290.55	1.06	0.02	1.08	0.88
0073	0073	5.44	97.03	223.67	1.15	0.02	1.15	0.96	5.29	99.43	214.74	1.06	0.01	1.07	0.89
0076	0076	4.62	71.58	334.55	2.42	0.10	2.53	2.06	4.83	74.47	307.13	1.91	0.22	2.15	1.75
0127	0129	6.72	97.85	515.04	3.72	0.46	4.19	3.42	6.14	86.99	509.30	3.82	0.70	4.53	3.70
0024	0024	2.94	44.64	359.86	2.82	0.41	3.23	2.64	3.12	47.98	357.97	2.62	0.33	2.96	2.42
0119	0119	4.39	78.71	282.73	1.98	0.18	2.16	1.85	3.91	75.98	263.43	1.65	0.09	1.76	1.50

CAR#	RUN#	WEIGHTED MASS - 1972 PROCEDURE HC	CO	CO2	NO	NO2	NOX	NOXC	WEIGHTED MASS - 1975 PROCEDURE HC	CO	CO2	NO	NO2	NOX	NOXC
0064	0064	2.48	33.74	630.42	3.47	0.75	4.22	3.66	2.56	34.21	628.32	3.49	0.64	4.14	3.59
0049	0049	3.48	24.72	798.55	6.12	0.94	7.06	6.64	3.06	16.32	743.90	5.88	1.01	6.89	6.50
0067	0067	5.99	97.23	537.73	3.78	1.18	4.97	4.34	5.10	75.10	559.68	4.54	0.95	5.50	4.79
0132	0147	4.47	74.06	492.08	3.23	0.77	4.01	3.36	3.69	63.60	473.28	3.32	0.64	3.97	3.33
0115	0122	5.00	62.13	594.06	5.12	1.98	7.10	5.96	4.38	46.03	572.35	5.37	1.49	6.86	5.76
0150	0163	10.67	263.03	352.63	0.42	0.09	0.52	0.46	8.32	234.20	346.50	0.46	0.08	0.54	0.48
0071	0071	7.04	80.92	377.56	2.66	0.42	2.89	2.37	6.46	80.83	369.85	2.47	0.35	2.83	2.32
0145	0159	6.97	45.07	210.86	2.18	0.34	2.52	2.11	6.93	41.90	215.74	2.25	0.40	2.66	2.23
0080	0090	7.08	99.03	566.58	2.94	0.82	3.76	3.13	6.93	97.38	564.76	2.61	0.66	3.28	2.73
0169	0186	53.04	79.03	737.97	4.30	3.08	7.38	6.05	50.74	71.67	770.44	4.73	2.74	7.47	6.12
0022	0021	4.66	111.93	694.86	4.90	1.56	6.47	5.30	4.15	103.51	652.84	4.68	1.17	5.85	4.79
0012	0012	7.84	153.81	556.47	3.60	1.15	4.75	3.88	7.42	150.30	541.62	3.54	1.03	4.57	3.74
0138	0149	5.37	147.05	611.70	1.14	0.14	1.19	0.99	5.21	137.58	595.20	1.04	0.14	1.18	0.98
0082	0088	5.82	23.54	587.28	6.20	1.50	7.70	6.28	5.76	23.21	580.72	6.69	2.67	9.36	7.63
0008	0008	5.00	111.24	811.02	5.37	1.14	6.52	5.29	4.31	93.96	779.80	4.90	1.13	6.04	4.90
0093	0095	3.84	64.90	640.00	4.60	1.31	5.92	4.88	3.95	69.22	606.83	4.19	0.98	5.18	4.26
0101	0106	2.47	10.71	629.13	4.10	1.24	5.35	4.41	2.14	9.39	614.62	4.09	1.30	5.40	4.45
0114	0123	3.52	43.90	600.15	3.57	0.96	4.54	3.80	3.27	46.54	560.67	3.22	1.10	4.32	3.62
0135	0146	2.67	26.60	304.98	1.98	0.30	2.28	1.91	2.59	25.46	300.27	2.14	0.22	2.36	1.98
0085	0087	3.19	47.93	621.27	4.09	1.13	5.22	4.20	2.92	44.66	619.30	4.29	1.13	5.42	4.36
0116	0124	7.37	65.28	489.92	3.25	1.56	4.81	4.02	6.72	59.19	476.44	3.47	1.15	4.63	3.86
0136	0151	3.80	25.23	511.86	4.37	1.78	6.16	5.14	3.66	24.85	497.43	4.52	1.46	5.99	5.00
0136	0153R	3.47	23.91	530.11	4.53	2.18	6.71	5.64	3.17	21.43	506.81	4.61	1.69	6.32	5.30
0041	0044	4.65	62.97	625.43	5.65	2.34	8.99	7.23	3.67	46.28	618.58	5.86	2.40	8.26	6.64
0080	0083	3.87	41.71	485.91	4.63	1.06	5.70	4.62	3.34	33.33	490.44	4.96	1.07	6.04	4.99
0119	0129	5.20	57.12	509.64	3.92	1.62	5.55	4.60	4.49	47.03	518.66	4.45	1.68	6.14	5.09
0137	0150	5.34	82.03	543.83	3.51	0.94	4.45	3.74	4.50	59.72	544.02	3.82	1.27	5.10	4.29
0018	0017	5.52	154.88	451.25	2.25	0.85	3.12	2.55	5.91	173.33	422.46	2.04	0.60	2.64	2.16
0021	0026	2.82	53.29	262.19	2.15	0.46	2.61	2.09	2.68	54.70	254.82	1.96	0.39	2.35	1.88
0070	0070	2.22	47.64	369.34	3.32	0.64	3.97	3.19	1.74	44.87	372.26	3.51	0.85	4.36	3.50
0094	0099	5.22	64.55	486.47	3.12	1.31	4.44	3.66	4.57	49.61	480.10	3.01	1.14	4.15	3.42
0164	0176	5.95	71.47	464.45	2.87	0.90	3.78	3.14	4.77	50.66	440.32	2.90	0.94	3.84	3.20
0030	0032	6.59	113.47	433.30	2.52	0.15	2.67	2.13	6.64	114.75	436.86	2.55	0.28	2.84	2.32
0083	0086	9.39	108.88	368.10	2.05	1.33	3.38	2.76	9.02	105.46	371.11	1.98	1.03	3.02	2.46
0134	0144	15.18	130.53	390.78	1.58	0.13	1.72	1.48	12.32	113.35	359.86	1.49	0.31	1.80	1.55
0134	0145R	12.16	108.18	371.46	1.56	0.38	1.94	1.60	10.49	94.21	358.42	1.59	0.37	1.96	1.61
0005	0005	8.39	150.06	434.82	2.80	0.64	3.45	2.81	7.94	151.40	431.51	2.68	0.95	3.63	2.96
0059	0059	6.73	100.00	429.87	2.00	0.82	2.82	2.26	6.34	100.40	426.50	1.92	0.52	2.45	1.96
0099	0104	7.58	56.02	414.87	2.72	1.08	3.80	3.05	6.54	49.30	429.87	2.96	0.92	3.89	3.12
0086	0105	12.46	76.31	475.29	3.80	1.05	4.85	3.92	11.36	72.18	464.08	3.73	1.17	4.91	3.97
0158	0182	17.58	62.92	507.67	3.50	1.15	4.66	3.88	17.75	47.27	497.03	3.21	1.56	4.78	3.98
0062	0073	7.27	87.00	272.56	0.91	0.13	1.04	0.84	5.73	77.90	279.34	1.01	0.15	1.17	0.94
0076	0078	12.84	135.76	368.89	1.63	0.51	2.14	1.76	11.30	127.51	365.58	1.61	0.57	2.19	1.80
0106	0113	10.19	84.80	355.62	2.38	1.06	3.44	2.82	9.09	77.85	346.37	2.55	0.89	3.45	2.82
0110	0117	4.85	55.83	330.62	2.43	0.48	2.91	2.56	3.84	47.43	321.45	2.48	0.43	2.91	2.56
0160	0173	7.06	89.54	361.65	2.21	0.56	2.78	2.31	8.17	83.19	335.51	2.06	0.43	2.49	2.07
0148	0178	31.88	123.16	393.51	1.43	0.35	1.79	1.49	29.63	113.69	374.15	1.42	0.34	1.77	1.47
0028	0027	3.91	78.50	427.88	4.53	0.69	5.27	4.26	3.54	75.30	427.42	4.65	1.04	5.70	4.60
0050	0051	4.79	70.53	363.43	3.23	0.40	3.63	2.92	4.21	61.27	364.97	3.34	0.63	3.97	3.19
0073	0075	5.49	64.21	420.64	2.55	0.89	3.44	2.76	5.23	61.21	414.46	2.59	0.81	3.40	2.73

CAR#	RUN#	WEIGHTED MASS - 1972 PROCEDURE HC	CO	CO2	NO	NO2	NOX	NOXC	WEIGHTED MASS - 1975 PROCEDURE HC	CO	CO2	NO	NO2	NOX	NOXC
0130	0139	9.77	87.56	430.00	2.30	0.85	3.15	2.63	7.83	66.72	482.64	2.70	0.86	3.56	2.98
0156	0170	4.97	55.00	527.23	1.99	0.34	2.34	2.04	4.19	38.90	525.38	2.27	0.37	2.64	2.31
0087	0096	9.56	98.97	386.69	3.49	0.86	4.35	3.58	8.84	82.23	340.69	3.44	0.80	4.24	3.50
0024	0024	7.25	98.98	485.57	3.17	0.69	3.86	3.10	6.65	98.99	469.37	3.32	0.64	3.97	3.19
0058	0058	5.31	72.27	439.99	4.65	1.41	6.06	4.90	4.05	57.13	442.83	5.08	0.99	6.07	4.91
0139	0152	8.07	93.34	375.31	3.10	0.76	3.86	3.43	6.29	77.70	372.52	3.24	0.87	4.12	3.66
0149	0162	10.73	81.93	505.66	2.96	1.05	4.01	3.44	10.37	80.98	510.16	3.17	0.96	4.14	3.55
0060	0062	5.96	52.60	414.39	3.96	0.65	4.62	3.73	5.04	52.24	405.12	3.88	0.64	4.52	3.65
0112	0119	4.70	29.32	427.72	4.55	2.39	6.94	5.86	3.91	101.05	406.28	4.72	2.13	6.85	5.78
0142	0156	8.54	73.10	443.92	3.29	1.00	4.20	3.92	8.40	75.94	429.21	3.15	0.82	3.98	3.71
0034	0035	7.15	114.67	591.85	3.67	1.95	5.62	4.59	5.87	103.66	571.93	3.88	1.62	5.51	4.50
0152	0164	9.03	103.52	500.13	3.51	0.97	4.48	3.88	7.62	81.69	500.35	3.93	1.08	5.01	4.33
0078	0081	10.29	189.40	568.71	2.49	0.19	2.69	2.16	8.91	134.31	588.02	3.15	0.57	3.73	2.99
0113	0121	3.60	37.41	595.88	3.16	2.39	5.55	4.72	3.52	31.29	588.19	3.67	2.18	5.85	4.98
0125	0128	4.81	43.02	495.26	3.30	1.39	4.70	3.80	4.28	37.87	482.87	3.38	1.25	4.64	3.75
0154	0168	11.15	165.77	502.22	2.11	0.34	2.45	2.14	7.46	102.25	517.98	2.99	0.84	3.84	3.35
0032	0135	4.79	69.97	397.99	2.68	5.32	8.00	6.79	3.79	55.75	389.61	2.77	5.34	8.11	6.89
0167	0183	8.45	76.85	497.61	2.53	0.70	3.24	2.74	7.69	61.99	491.28	2.75	0.73	3.49	2.95
0061	0061	5.39	95.04	562.39	3.21	0.84	4.05	3.27	4.25	62.93	576.37	4.00	0.88	4.88	3.94
0096	0101	17.18	224.59	454.14	2.00	0.60	2.61	2.11	10.22	133.12	475.21	2.66	0.75	3.42	2.77
0168	0181	9.82	93.36	363.52	2.47	0.66	3.33	2.73	5.97	56.71	375.00	3.31	0.99	4.31	3.53
0126	0138	4.29	73.14	366.15	1.69	0.80	2.50	2.31	3.92	62.43	351.04	1.84	0.66	2.50	2.31
0161	0174	4.02	61.64	449.98	3.85	1.80	5.66	4.56	3.61	51.64	437.74	4.02	1.67	5.70	4.59
0026	0029	1.28	45.31	338.60	1.74	0.39	2.13	1.72	1.16	44.01	326.75	1.61	0.31	1.93	1.56
0069	0069	3.19	38.42	709.06	5.93	1.82	7.76	6.61	3.06	36.19	683.12	5.76	1.80	7.57	6.46
0165	0185	2.41	13.86	751.71	3.71	1.52	5.24	4.29	1.04	11.61	730.93	4.39	0.92	5.32	4.36
0007	0007	4.01	60.64	1088.91	5.44	1.70	7.15	6.03	3.77	52.88	1077.10	5.49	1.67	7.17	6.04
0120	0125	2.38	19.96	464.31	5.34	1.82	7.16	6.01	2.13	11.78	460.49	5.29	2.05	7.34	6.16
0133	0143	5.34	51.93	577.20	4.08	1.40	5.38	4.43	4.67	32.34	571.17	4.49	1.46	5.96	4.91
0033	0034	7.26	111.08	570.08	3.37	2.60	5.98	4.82	6.41	83.31	589.82	4.22	2.16	6.39	5.15
0035	0036	3.79	71.09	734.41	5.43	1.13	6.57	5.29	2.95	59.84	687.26	5.28	1.15	6.44	5.18
0146	0160	5.60	78.90	433.64	2.91	0.62	3.53	2.95	4.75	61.25	437.64	3.48	1.29	4.77	3.99
0155	0169	3.66	53.77	451.57	5.47	2.52	8.00	6.97	3.25	46.61	435.78	5.70	2.77	8.48	7.39
0155	0171R	3.45	49.28	448.33	5.02	2.69	7.72	6.41	3.15	44.37	435.22	5.46	2.90	8.36	6.94
0013	0013	5.77	104.63	624.43	4.44	1.80	6.24	5.18	5.47	101.26	609.55	5.00	1.71	6.71	5.57
0031	0033	3.39	31.02	573.72	4.24	1.54	5.78	4.67	2.86	27.18	533.68	4.14	1.46	5.60	4.52
0031	0347R	2.72	49.22	617.44	3.50	1.15	4.66	3.75	2.20	42.00	578.70	4.65	1.25	5.91	4.76
0060	0060	3.33	34.08	634.49	5.72	0.86	6.59	5.24	3.35	30.82	615.61	5.71	1.15	6.86	5.46
0159	0172	2.25	22.12	556.48	5.99	5.29	11.28	9.43	2.12	17.38	487.36	6.25	3.87	10.13	8.46
0043	0046	9.93	167.09	376.47	1.28	0.07	1.35	1.09	10.26	150.96	393.15	1.82	0.05	1.88	1.51
0051	0050	7.52	106.89	382.17	2.70	0.11	2.81	2.30	7.33	106.04	376.10	2.41	0.15	2.56	2.10
0072	0074	6.12	83.68	524.17	4.32	1.16	5.48	4.40	5.30	66.94	520.39	4.52	1.08	5.61	4.50
0105	0112	14.35	84.67	594.87	0.46	0.05	0.52	0.42	12.74	75.90	600.35	0.44	0.06	0.50	0.41
0141	0155	6.37	63.69	660.46	2.75	0.84	3.59	3.36	5.26	48.56	649.63	2.90	0.68	3.59	3.36
0021	0022	8.82	83.37	530.06	5.90	1.94	7.85	6.28	7.03	78.32	511.59	5.85	2.17	8.02	6.42
0084	0085	4.31	31.18	463.42	4.80	1.78	6.58	5.36	4.09	28.09	462.61	5.00	2.73	7.74	6.31
0045	0040	5.75	47.22	571.50	5.18	2.14	7.32	5.89	5.26	41.69	544.92	4.75	2.04	6.80	5.47
0056	0052	3.83	91.12	430.26	1.74	0.13	1.88	1.54	3.76	90.65	425.25	1.78	0.16	1.95	1.60
0107	0114	72.43	76.79	495.21	2.80	1.43	4.23	3.49	65.91	73.11	456.93	2.80	1.04	3.85	3.18
0129	0140	6.80	77.57	403.27	3.66	1.68	5.35	4.47	6.19	73.14	394.62	3.85	1.67	5.52	4.61

CAR#	RUN#	WEIGHTED MASS - 1972 PROCEDURE HC	CO	CO2	NO	NO2	NOX	NOXC	WEIGHTED MASS - 1975 PROCEDURE HC	CO	CO2	NO	NO2	NOX	NOXC
0074	0079	4.06	55.36	396.34	3.33	0.97	4.31	3.52	3.94	53.90	385.77	3.32	0.33	4.16	3.40
0111	0118	14.06	111.08	472.58	1.02	0.17	1.19	1.00	11.50	97.29	467.49	1.08	0.13	1.22	1.03
0143	0161	5.72	47.28	484.09	3.75	1.24	4.99	4.15	4.63	29.34	482.86	4.01	1.46	5.48	4.55
0144	0158	10.97	134.35	434.73	1.76	0.40	2.16	1.80	11.00	130.59	417.69	1.79	0.31	2.11	1.75
0075	0076	7.14	89.53	504.19	3.02	1.04	4.06	3.39	5.69	73.86	613.85	3.81	1.10	4.92	3.98
0091	0093	5.14	50.12	372.69	3.13	1.21	4.34	3.59	4.43	43.99	373.33	3.53	1.40	4.94	4.08
0128	0162	5.01	45.51	341.85	2.24	1.00	3.25	2.60	4.43	44.16	323.53	2.20	0.70	2.90	2.33
0024	0024	3.97	46.08	447.66	4.73	2.52	7.25	6.02	3.56	44.25	436.62	4.92	2.24	7.17	5.94
0025	0023	5.43	173.53	775.31	3.14	0.64	3.79	3.12	4.36	153.80	720.42	3.05	0.48	3.54	2.91
0071	0072	5.70	61.47	573.53	4.83	1.83	6.67	5.40	4.23	41.43	537.83	5.21	1.64	6.86	5.56
0063	0063	4.83	34.90	648.08	4.73	1.28	8.02	6.48	4.76	27.81	647.17	7.03	1.21	8.25	6.66
0042	0077	6.43	90.80	548.44	2.63	0.92	3.56	2.93	4.09	65.06	532.76	2.91	0.80	3.72	3.06
0151	0167	7.20	104.14	523.55	4.23	1.27	5.51	4.72	5.94	77.70	517.23	4.70	1.65	6.35	5.44
0124	0133	3.71	41.72	542.09	3.33	1.08	4.41	3.68	3.34	35.80	522.23	3.62	1.00	4.62	3.85
0124	0137R	3.20	40.60	513.13	3.34	0.83	4.18	3.44	3.13	35.82	499.38	3.56	0.94	4.51	3.71
0127	0134	4.25	37.15	512.32	4.24	1.17	5.41	4.44	3.71	28.53	496.40	4.21	1.33	5.55	4.55
0153	0165	33.74	96.32	400.71	3.13	1.29	4.42	3.83	30.78	98.97	458.94	3.23	1.09	4.33	3.74
0044	0041	3.93	38.59	702.48	6.12	1.85	7.98	6.42	3.20	24.41	662.93	5.98	1.70	7.69	6.18
0140	0154	4.41	63.03	542.52	2.37	0.77	3.14	2.34	3.87	52.65	521.56	2.48	0.66	3.14	2.84
0140	0157R	4.39	62.06	488.12	2.33	0.22	2.26	2.09	5.06	44.46	495.36	2.18	0.40	2.58	2.40
0053	0054	8.33	103.22	549.26	3.95	0.26	4.21	3.46	7.71	87.32	518.80	3.94	0.16	4.13	3.40
0102	0108	10.33	103.15	475.43	1.81	0.23	2.04	1.68	9.58	79.83	472.19	2.53	0.53	3.07	2.53
0106	0111R	9.27	103.79	494.13	2.13	0.26	2.40	1.96	8.34	69.03	490.31	2.84	0.59	3.44	2.81
0017	0018	5.43	93.33	479.42	3.53	0.64	4.24	3.46	5.45	91.54	466.57	3.60	0.51	4.11	3.36
0162	0175	9.44	95.03	546.05	3.54	1.46	5.01	4.04	8.82	91.03	530.06	3.50	1.41	4.92	3.97
0039	0043	2.98	51.32	825.73	3.21	0.64	3.86	3.10	2.42	45.01	802.63	3.61	0.52	4.14	3.33
0031	0034	4.62	42.30	439.59	4.21	0.91	5.13	4.15	4.46	40.37	431.27	4.19	0.86	5.06	4.09
0123	0130	5.31	65.23	548.56	3.93	1.03	4.96	4.11	5.28	63.31	552.43	4.21	0.91	5.13	4.25
0010	0010	4.59	51.60	653.73	4.54	1.65	6.20	5.05	4.67	57.43	633.02	4.36	1.26	5.62	4.58
0118	0127	6.41	54.12	661.56	2.48	0.63	3.12	2.56	5.93	51.26	639.77	2.51	0.59	3.10	2.54
0088	0091	5.73	74.26	519.78	3.34	1.19	4.54	3.71	4.62	57.06	523.08	3.67	1.11	4.78	3.91
0088	0093R	6.15	77.32	508.16	3.60	1.49	5.09	4.20	4.66	55.86	512.82	3.84	1.28	5.12	4.22
0006	0006	3.35	24.82	572.43	5.93	1.44	7.37	6.39	3.12	24.11	562.43	5.62	2.14	7.76	6.74
0103	0110	8.35	63.25	532.46	3.42	1.58	5.01	4.03	5.73	54.20	532.11	3.73	1.69	5.39	4.34
0029	0031	8.62	112.16	263.10	1.24	0.07	1.32	1.08	7.98	117.03	311.79	1.70	0.17	1.87	1.53
0057	0057	12.16	174.91	348.67	0.30	0.08	0.38	0.31	11.40	151.64	362.40	0.55	0.09	0.65	0.52
0097	0102	10.63	104.87	371.04	2.68	0.71	3.39	2.79	6.67	90.69	391.26	3.34	0.71	4.06	3.34
0157	0180	5.12	66.31	384.14	2.81	0.79	3.60	3.00	4.11	51.20	380.14	3.06	0.85	3.92	3.26
0011	0011	3.31	41.95	659.14	3.87	0.71	4.58	3.74	3.69	36.25	648.43	3.92	0.83	4.75	3.89
0011	0016R	2.95	30.62	665.43	4.57	0.43	5.00	4.03	2.89	28.45	627.30	4.26	0.37	4.64	3.74
0065	0065	3.67	69.37	605.90	3.50	0.56	4.06	3.28	3.62	68.25	580.70	3.55	0.59	4.14	3.35
0015	0015	3.02	46.95	627.01	3.53	0.86	4.39	3.59	2.69	35.31	621.41	4.54	1.23	5.78	4.73
0104	0109	2.84	34.34	539.78	3.35	1.54	4.90	3.98	2.63	31.69	527.85	3.68	1.33	5.02	4.07
0052	0053	3.34	43.48	502.83	5.10	1.13	6.23	5.12	3.49	33.28	500.37	5.43	1.08	6.51	5.35
0092	0094	3.00	66.50	394.86	3.72	1.31	5.04	4.12	2.56	60.84	392.79	4.03	1.56	5.59	4.57
0014	0014	3.48	48.08	540.48	5.56	1.43	7.04	5.76	2.96	29.97	596.83	6.03	1.89	7.93	6.48
0054	0056	4.26	58.81	503.03	3.59	1.03	4.63	3.83	3.53	42.80	517.50	4.32	0.94	5.27	4.36
0131	0141	6.74	63.26	509.72	3.59	1.22	4.79	4.10	6.33	69.03	570.38	3.30	0.78	4.08	3.50
0019	0020	8.24	132.24	335.61	2.52	0.80	3.33	2.72	6.62	113.09	392.33	2.98	0.87	3.86	3.15
0055	0055	3.90	29.49	574.22	3.82	0.61	4.44	3.64	3.73	29.22	510.99	3.82	0.54	4.37	3.59

CAR#	RUN#	WEIGHTED MASS - 1972 PROCEDURE HC	CO	CO2	NO	NO2	NOX	NOXC	WEIGHTED MASS - 1975 PROCEDURE HC	CO	CO2	NO	NO2	NOX	NOXC
0109	0116	5.62	39.46	565.18	4.49	2.81	7.30	6.81	5.09	32.21	559.48	4.93	1.88	6.88	6.41
0117	0126	5.22	51.16	432.93	2.91	0.54	3.36	2.76	4.79	46.40	419.19	2.92	0.62	3.54	2.91
0147	0166	64.40	60.21	552.55	3.93	1.71	5.64	4.80	60.98	52.79	534.82	3.78	1.80	5.59	4.76
0016	0019	6.76	66.24	598.30	5.09	1.36	6.46	5.27	6.46	56.47	636.86	5.28	1.33	6.62	5.41
0163	0179	7.29	109.87	581.01	2.04	0.41	2.46	2.05	5.92	99.97	561.35	2.03	0.33	2.36	1.96
0166	0184	4.26	28.71	239.37	2.29	0.58	2.88	2.43	3.13	24.20	231.17	2.35	0.52	2.87	2.43
0108	0115	7.27	97.22	522.73	1.99	0.29	2.28	1.98	6.31	85.38	499.33	1.96	0.22	2.19	1.80
0138	01208	6.41	77.73	523.20	2.06	0.54	2.61	2.20	5.61	67.69	507.72	2.14	0.39	2.53	2.14
0170	0187	8.60	94.87	398.49	3.07	1.02	4.10	3.49	8.24	84.06	414.72	3.14	0.70	3.84	3.27
0090	0092	1.57	15.14	414.80	3.24	0.51	3.75	3.10	1.49	12.40	411.26	3.31	0.52	3.84	3.17
0036	0037	1.98	47.44	434.97	3.05	0.83	3.88	3.12	1.68	42.53	417.74	3.20	0.64	3.85	3.10
0068	0068	3.73	41.18	498.37	3.11	0.82	3.94	3.14	3.47	38.17	492.94	3.19	0.76	3.96	3.18
0023	0025	5.91	164.34	407.99	1.29	0.11	1.40	1.14	4.68	155.04	393.54	1.34	0.08	1.42	1.16
0048	0048	6.53	37.97	299.36	1.96	0.33	2.35	1.89	5.70	44.66	348.17	2.49	0.33	2.83	2.28
0047	0045	4.42	117.47	406.50	1.68	0.38	2.06	1.66	4.18	114.29	394.62	1.66	0.22	1.88	1.51
0098	0103	3.21	31.84	312.12	1.94	0.91	2.86	2.38	2.55	29.10	313.96	1.98	0.84	2.83	2.36
0003	0003	2.63	54.56	449.34	2.85	0.34	3.19	2.65	2.41	48.13	480.38	3.06	0.35	3.41	2.83
0038	0039	2.78	60.66	260.36	2.02	0.26	2.28	1.83	2.67	58.29	262.70	2.03	0.33	2.37	1.90
0102	0107	2.71	19.36	304.00	2.65	0.65	3.30	2.64	2.59	20.12	295.28	2.46	0.50	2.96	2.40
0046	0042	4.89	42.56	351.04	2.69	0.69	3.39	2.72	4.07	39.52	341.09	2.66	0.62	3.29	2.64
0077	0080	9.86	68.10	200.36	1.20	0.57	1.77	1.44	9.50	67.72	201.06	1.16	0.40	1.57	1.27
0095	0100	10.13	67.84	250.14	1.90	0.17	2.07	1.68	9.26	66.16	253.80	1.85	0.20	2.06	1.67
0066	0066	6.27	43.63	246.76	2.21	0.29	2.51	2.02	6.03	41.42	248.07	2.20	0.20	2.40	1.93
0037	0038	9.04	95.52	242.50	2.14	0.30	2.44	1.97	9.02	95.24	243.53	2.19	0.29	2.49	2.01
0121	0132	9.27	53.62	234.91	1.24	0.15	1.39	1.15	9.20	53.44	232.20	1.20	0.14	1.34	1.11
0002	0028	20.74	63.78	207.36	2.41	0.36	2.77	2.33	24.60	62.66	206.90	2.43	0.33	2.77	2.32
0122	0131	4.74	27.74	242.93	2.67	0.60	3.28	2.68	4.37	25.64	233.85	2.57	0.50	3.07	2.50
0027	0030	13.75	154.15	202.88	0.52	0.05	0.57	0.46	13.17	151.00	196.20	0.48	0.03	0.52	0.42
0009	0009	2.40	32.61	364.36	2.90	1.25	4.15	3.42	2.11	21.51	346.72	2.98	1.03	4.02	3.31

CAR# RUN#	WEIGHTED MASS - 1972 PROCEDURE							WEIGHTED MASS - 1975 PROCEDURE						
	HC	CO	CO2	NO	NO2	NOX	NOXC	HC	CO	CO2	NO	NO2	NOX	NOXC
0169 0179	3.06	86.27	821.32	1.96	0.22	2.18	2.40	2.71	75.77	721.60	2.22	0.28	2.52	2.77
0027 0032	4.65	97.59	730.36	4.63	1.65	6.29	5.91	4.09	79.39	687.61	4.63	1.45	6.09	5.73
0143 0153	4.99	88.31	709.37	6.65	0.93	7.59	8.44	4.67	79.82	692.68	6.80	1.22	8.03	8.94
0023 0024	13.53	219.66	480.15	1.84	0.23	2.07	1.98	10.91	183.22	479.74	2.33	0.29	2.63	2.50
0023 0024R	11.42	213.20	529.62	2.45	0.41	2.86	2.67	9.71	178.47	507.17	2.75	0.69	3.44	3.21
0037 0040	9.12	179.23	667.03	1.88	0.10	1.98	1.90	6.64	151.58	674.63	2.35	0.29	2.65	2.54
0003 0003	8.10	139.62	470.49	1.59	0.18	1.77	1.87	6.92	124.59	450.59	1.48	0.13	1.62	1.71
0041 0045	6.10	119.43	384.86	2.11	0.61	2.73	2.74	5.73	121.02	340.73	2.00	0.41	2.42	2.42
0012 0012	16.58	159.91	557.34	2.42	0.40	2.82	3.26	16.72	172.16	558.57	2.22	0.30	2.52	2.91
0168 0178	12.24	150.14	519.37	3.83	1.05	4.88	4.70	11.59	147.47	496.77	3.44	0.78	4.22	4.06
0116 0126	7.84	89.30	589.10	4.42	0.56	4.98	5.86	7.30	82.98	534.57	4.16	0.36	4.53	5.32
0072 0078	7.91	74.73	643.28	3.74	0.69	4.43	5.41	7.31	74.39	610.99	3.60	0.57	4.17	5.09
0072 0078R	8.36	86.89	638.98	3.69	0.61	4.31	5.29	7.78	82.43	606.74	3.49	0.52	4.01	4.92
0154 0168	9.78	130.57	736.44	3.79	0.69	4.49	5.12	5.46	125.58	735.24	3.23	0.41	3.64	4.16
0145 0155	5.10	71.34	722.81	5.03	1.29	6.33	7.72	5.09	69.84	689.25	5.23	1.29	6.53	7.96
0099 0106	5.12	74.37	413.12	1.35	0.91	2.26	2.75	4.96	81.71	392.65	1.24	0.89	2.14	2.60
0117 0127	2.34	27.12	1555.26	6.13	1.89	8.03	7.68	2.54	26.41	1830.23	5.77	1.47	7.25	6.93
0142 0152	2.41	31.02	796.55	3.58	0.67	4.26	4.56	2.20	29.83	720.17	3.57	0.77	4.35	4.65
0150 0160	4.72	45.42	523.12	3.67	0.81	4.49	5.47	4.53	47.04	505.29	3.52	0.74	4.27	5.20
0153 0163	1.81	27.94	950.03	4.28	1.01	5.30	6.04	1.70	28.05	827.36	4.19	0.82	5.02	5.72
0155 0165	2.57	67.20	611.78	2.00	0.24	2.24	2.71	2.41	62.77	593.93	2.12	0.20	2.33	2.82
0163 0173	2.35	43.12	661.83	3.30	0.45	3.75	3.56	2.11	39.39	607.41	3.28	0.48	3.77	3.58
0006 0004	6.20	113.81	575.48	5.21	0.70	5.91	5.65	5.32	104.98	570.25	4.99	1.33	6.33	6.05
0106 0115	3.47	50.96	630.28	3.94	0.48	4.43	4.06	3.10	43.34	595.36	3.93	0.50	4.44	4.06
0122 0132	5.34	69.49	547.19	4.42	0.89	5.31	6.08	4.72	65.39	585.55	4.72	0.90	5.63	6.45
0147 0157	4.57	100.30	674.76	3.58	0.39	3.96	3.39	3.83	92.30	697.45	2.88	0.39	3.26	3.74
0011 0011	7.51	63.76	473.56	4.11	0.69	4.81	5.98	7.19	57.09	448.92	4.05	0.78	4.84	6.01
0104 0113	4.02	68.86	536.00	3.41	0.78	4.20	4.78	3.63	63.62	519.11	3.49	0.62	4.12	4.68
0107 0116	4.37	47.72	622.14	5.10	1.52	6.63	7.58	3.68	41.57	596.63	5.19	1.41	6.61	7.55
0125 0135	6.36	102.95	597.10	3.66	0.85	4.51	4.83	6.05	93.72	542.76	3.51	0.61	4.12	4.42
0013 0013	9.55	152.33	709.13	1.98	0.15	2.13	2.49	7.93	124.78	687.83	2.09	0.14	2.24	2.62
0043 0043	8.19	41.35	668.28	2.61	0.99	3.60	4.38	7.21	48.38	658.40	3.03	0.96	4.00	4.86
0057 0063	4.64	52.03	518.80	3.18	0.78	3.96	4.46	4.54	49.76	518.12	3.07	0.88	3.96	4.46
0059 0065	19.72	208.67	593.45	1.05	0.14	1.20	1.46	19.10	207.12	570.43	1.02	0.15	1.17	1.42
0135 0138	10.30	312.38	533.66	2.95	0.40	3.35	4.03	9.11	307.04	509.34	2.88	0.40	3.29	3.96
0035 0043R	9.11	90.32	452.14	2.53	0.36	2.89	3.42	8.29	83.24	448.12	2.42	0.29	2.71	3.21
0078 0086	4.35	27.23	398.41	3.84	0.60	4.44	5.45	3.93	25.11	385.93	3.87	0.60	4.48	5.49
0105 0114	9.19	141.10	471.11	1.27	0.42	1.69	2.06	7.33	120.61	461.64	1.52	0.24	1.76	2.15
0042 0047	4.93	78.35	517.74	2.05	0.30	2.35	2.87	4.23	66.72	500.06	2.14	0.25	2.39	2.90
0097 0105	8.48	128.98	540.85	3.62	1.58	5.21	6.91	7.77	116.94	510.62	3.68	1.51	5.20	6.91
0112 0122	7.22	91.25	500.39	4.65	1.00	5.65	5.09	6.67	82.32	474.09	4.88	1.19	6.08	5.48
0119 0128	4.96	98.69	336.31	1.99	0.25	2.24	2.32	5.19	81.71	388.06	2.09	0.27	2.36	2.46
0007 0007	17.87	237.84	429.75	0.73	0.03	0.77	0.90	14.42	214.77	747.65	0.79	0.04	0.74	0.87
0015 0015	7.75	95.95	562.98	2.34	0.21	2.55	2.69	7.11	91.47	536.23	2.31	0.22	2.54	2.68
0060 0066	9.62	111.08	598.22	3.32	0.65	3.97	4.83	8.54	100.78	583.65	3.52	0.62	4.13	5.02
0141 0151	8.50	153.55	479.95	2.55	0.34	2.89	3.59	7.47	122.60	463.07	2.46	0.30	2.76	3.42
0081 0099	10.42	140.69	478.06	2.75	0.38	3.64	3.26	9.98	133.96	455.63	2.21	0.31	2.53	3.13
0086 0094	7.74	89.12	561.74	4.61	1.34	5.96	5.57	6.75	76.10	492.68	4.60	1.13	5.79	5.41
0087 0095	10.27	49.32	567.60	6.17	1.68	7.86	8.24	9.80	49.07	543.60	6.24	1.75	7.99	8.38
0090 0098	5.46	113.17	387.19	2.30	0.23	2.53	2.84	5.43	117.12	373.14	2.14	0.24	2.39	2.68

CAR#	RUN#	WEIGHTED MASS - 1972 PROCEDURE HC	CO	CO2	NO	NO2	NOX	NOXC	WEIGHTED MASS - 1975 PROCEDURE HC	CO	CO2	NO	NO2	NOX	NOXC
0005	0005	8.27	128.12	765.52	2.62	0.59	3.22	2.92	7.54	130.94	644.91	1.98	0.37	2.36	2.13
0063	0069	10.23	121.62	900.66	2.05	0.25	2.30	2.04	9.40	120.61	475.65	1.89	0.18	2.08	2.57
0084	0092	13.17	99.73	464.61	3.25	0.93	4.18	5.17	9.70	102.30	444.81	2.93	0.83	3.76	4.60
0137	0147	8.29	96.38	450.15	2.49	0.34	2.83	3.24	6.94	90.63	383.62	2.54	0.24	2.79	3.19
0024	0031	7.99	51.94	339.21	1.58	0.12	1.71	1.46	5.54	43.15	331.41	1.68	0.11	1.80	1.54
0038	0041	11.08	182.07	409.71	1.07	0.21	1.29	1.26	10.29	180.41	389.91	0.93	0.14	1.12	1.10
0135	0145	4.20	80.09	527.19	2.35	0.16	2.52	3.07	3.34	77.29	509.28	2.17	0.09	2.26	2.76
0030	0033	19.86	37.72	558.74	4.60	1.46	6.06	6.69	16.95	30.51	526.47	4.55	1.21	5.76	6.37
0160	0170	10.15	145.44	376.74	1.20	0.01	1.20	1.46	9.36	142.42	353.50	1.05	0.02	1.03	1.26
0054	0059	6.41	104.83	536.70	1.71	0.16	1.87	1.81	6.27	102.36	510.08	1.63	0.11	1.74	1.69
0024	0026	5.11	70.33	424.94	1.68	0.14	1.82	1.64	4.72	68.00	405.96	1.58	0.16	1.75	1.57
0131	0141	5.31	102.60	774.14	3.31	0.13	3.44	4.20	5.05	101.09	766.98	3.29	0.19	3.48	4.25
0159	0169	6.51	144.25	695.86	2.04	0.02	2.07	2.48	5.39	124.62	651.42	2.15	0.05	2.21	2.64
0126	0136	3.22	69.70	502.76	5.05	1.00	6.05	6.96	2.72	59.46	477.79	4.90	1.02	5.93	6.82
0152	0162	4.67	81.36	713.13	3.19	0.87	4.07	3.75	5.47	91.31	694.40	3.32	0.90	4.22	3.89
0050	0055	5.73	119.92	571.52	2.43	0.26	2.69	3.14	5.40	122.87	542.73	2.16	0.17	2.34	2.73
0089	0097	9.52	194.16	451.55	1.09	0.07	1.17	1.42	8.65	190.56	424.50	0.85	0.08	0.94	1.14
0109	0119	12.01	191.35	449.74	1.13	0.15	1.29	1.34	9.94	159.52	456.27	1.59	0.18	1.77	1.84
0108	0117	4.40	49.98	670.39	6.42	1.88	8.30	9.93	3.81	38.92	652.24	6.78	1.91	8.69	10.40
0108	0121R	4.75	52.92	634.22	5.93	1.97	7.90	9.62	4.06	43.29	605.66	6.06	1.90	7.96	9.69
0065	0071	4.33	89.12	488.44	3.74	1.14	4.89	5.93	3.92	88.08	419.19	3.10	0.98	4.08	4.96
0010	001C	7.02	107.41	263.89	0.61	0.02	0.63	0.76	5.84	99.33	250.37	0.88	0.01	0.89	1.08
0075	0083	2.96	30.70	699.25	4.62	0.91	5.54	6.26	2.52	24.57	661.53	4.43	0.96	5.39	6.09
0088	0096	2.73	13.47	536.87	5.03	1.16	6.19	7.52	2.45	14.53	488.71	5.05	1.03	6.08	7.39
0099	0107	3.92	82.54	655.53	1.70	0.15	1.86	2.26	3.15	70.69	645.56	1.73	0.09	1.83	2.23
0099	0111R	4.07	88.79	691.80	2.34	0.14	2.49	3.04	3.64	80.35	674.61	2.24	0.11	2.35	2.88
0103	0112	10.12	9.69	294.09	2.79	0.46	3.26	3.98	10.26	8.67	286.07	2.68	0.38	3.07	3.75
0123	0133	2.80	31.33	501.87	4.78	0.49	5.28	7.03	2.50	26.35	484.37	4.74	0.46	5.21	6.93
0014	0014	5.77	84.03	440.17	3.06	0.49	3.56	3.78	5.65	83.81	426.55	2.97	0.49	3.46	3.69
0052	0057	4.40	80.34	680.42	4.69	1.18	5.87	7.20	4.12	77.62	646.43	4.72	1.20	5.93	7.27
0080	0088	3.42	37.45	743.46	5.14	1.40	6.55	8.04	3.00	32.19	719.82	5.35	1.33	6.68	8.20
0016	0016	6.33	58.21	579.12	5.30	1.71	7.01	7.11	5.84	47.96	568.00	5.39	1.71	7.10	7.20
0016	0019R	5.27	50.25	563.85	6.05	2.62	8.67	7.98	4.56	40.26	544.69	6.31	2.61	8.93	8.22
0043	0044	5.73	56.70	669.78	6.72	2.87	9.60	9.56	5.50	47.02	632.86	6.77	2.84	9.61	9.51
0046	0051	4.31	48.63	332.77	3.54	0.34	3.88	4.30	3.89	45.28	298.26	3.76	0.74	4.51	5.00
0096	0104	3.84	55.23	546.30	3.81	0.65	4.47	5.77	3.48	51.04	553.22	3.76	0.64	4.40	5.68
0082	0090	9.02	119.29	759.69	2.18	0.32	2.51	2.83	6.42	112.97	772.02	2.35	0.35	2.72	3.07
0136	0146	5.03	69.22	369.94	2.63	0.36	2.99	3.65	3.57	45.50	376.84	3.43	0.51	3.94	4.81
0149	0159	6.09	27.73	573.16	4.11	1.02	5.13	6.25	5.66	25.37	560.09	4.34	1.29	5.64	6.87
0044	0049	5.72	43.01	599.23	1.93	0.25	2.19	2.67	4.84	35.66	567.00	1.88	0.28	2.17	2.64
0045	0050	5.87	94.99	452.70	2.85	0.45	3.30	4.02	5.85	89.60	441.10	2.81	0.41	3.22	3.92
0053	0058	4.17	46.00	736.11	2.42	0.31	2.74	3.03	4.14	50.17	692.84	2.25	0.33	2.59	2.87
0053	0061R	3.71	36.85	744.43	2.70	0.34	3.05	3.72	3.63	33.96	707.01	2.67	0.39	3.06	3.74
0001	0001	6.38	91.61	382.48	2.81	0.35	3.16	3.54	5.98	88.97	374.94	2.81	0.35	3.17	3.55
0022	0023	7.75	105.49	471.58	3.81	0.82	4.64	4.34	7.25	98.47	456.09	3.81	0.90	4.71	4.41
0047	0052	46.67	122.15	566.74	2.71	0.49	3.21	3.55	40.48	126.31	536.35	2.29	0.42	2.72	3.02
0091	0099	6.62	105.45	354.07	2.11	0.23	2.34	2.64	6.32	103.66	330.41	1.80	0.15	1.95	2.20
0021	0022	7.17	120.84	727.38	3.54	0.69	4.23	3.88	6.39	107.77	692.44	3.65	0.70	4.36	4.00
0058	0064	8.90	84.75	442.62	3.63	0.65	4.28	4.67	7.27	82.38	428.42	3.53	0.56	4.10	4.47
0079	0087	11.50	35.73	372.62	2.98	0.45	3.44	4.21	10.04	33.57	371.82	3.05	0.39	3.44	4.22

		WEIGHTED MASS - 1972 PROCEDURE							WEIGHTED MASS - 1975 PROCEDURE						
CAR#	RUN#	HC	CO	CO2	NO	NO2	NOX	NOXC	HC	CO	CO2	NO	NO2	NOX	NOXC
0095	0103	11.50	135.54	238.18	0.84	0.04	0.89	1.08	14.23	130.94	225.36	0.77	0.03	0.80	0.97
0032	0035	11.10	121.91	490.54	3.78	0.64	4.42	5.56	10.03	116.20	480.19	3.72	0.66	4.38	5.51
0067	0073	5.67	92.86	375.35	2.47	0.35	2.83	3.17	5.45	89.10	362.88	2.52	0.28	2.80	3.14
0008	0008	9.07	132.95	546.96	3.60	0.75	4.35	5.24	7.76	111.17	539.69	3.88	0.87	4.76	5.73
0034	0037	22.01	86.53	543.19	2.23	0.14	2.38	3.25	19.82	92.82	515.69	2.02	0.24	2.26	3.10
0146	0156	12.41	95.69	487.93	5.48	1.94	7.43	9.05	11.75	95.04	461.45	5.24	1.59	6.84	8.33
0179	0180	8.45	110.50	428.88	2.11	0.20	2.31	2.65	8.06	100.50	435.95	2.34	0.32	2.67	3.06
0009	0009	8.80	83.70	787.29	1.98	0.22	2.21	2.64	7.54	67.28	732.51	2.02	0.19	2.21	2.65
0100	0178	7.10	91.42	308.18	1.29	0.02	1.31	1.70	6.40	79.74	294.88	1.17	0.02	1.20	1.55
0036	0039	9.90	87.30	487.58	3.54	0.67	4.21	4.00	8.83	85.47	465.66	3.34	0.63	3.97	3.78
0167	0177	5.07	92.76	353.34	3.35	0.50	3.86	4.69	5.16	80.40	381.76	3.89	0.49	4.39	5.33
0157	0167	5.22	75.04	612.84	3.01	0.59	3.60	3.37	4.10	57.11	591.15	3.23	0.51	3.75	3.51
0039	0042	5.31	92.70	431.82	3.56	0.64	4.21	4.35	4.73	86.94	445.31	3.49	0.54	4.03	4.16
0039	0046R	5.50	90.65	475.35	3.17	0.78	3.95	4.80	4.69	85.35	458.41	3.14	0.64	3.79	4.60
0018	0018	5.45	111.14	796.99	5.55	1.97	7.53	6.79	4.55	90.35	758.28	5.79	2.47	8.27	7.46
0114	0124	7.40	125.35	736.76	3.66	0.64	4.31	4.27	6.53	105.54	703.83	3.70	0.62	4.32	4.28
0051	0056	3.46	35.52	861.43	4.65	1.52	6.17	7.56	3.25	34.74	847.44	4.80	1.53	6.34	7.77
0140	0150	3.90	38.03	754.77	6.09	1.28	7.37	8.98	3.74	32.70	720.03	5.84	1.34	7.19	8.76
0002	0002	2.94	49.17	741.94	2.07	0.24	2.32	2.76	3.00	49.31	711.11	2.30	0.31	2.62	3.12
0020	0021	4.23	46.95	631.18	6.19	3.30	9.49	8.72	4.13	44.11	681.62	6.43	3.15	9.59	8.81
0083	0091	10.22	84.70	474.90	3.17	0.42	3.59	4.25	9.72	76.41	453.93	3.16	0.43	3.59	4.25
0151	0161	2.28	23.83	882.94	4.54	0.69	5.23	6.37	2.28	19.50	729.21	4.80	0.59	5.39	6.56
0062	0068	4.38	87.27	722.39	2.14	0.34	2.49	2.80	3.71	72.69	687.79	2.18	0.29	2.48	2.78
0120	0130	3.90	62.45	775.15	4.02	0.52	4.54	5.52	3.73	56.48	739.29	3.98	0.61	4.60	5.59
0128	0138	2.80	34.20	963.64	3.61	0.17	3.78	4.41	2.52	26.29	941.10	3.62	0.27	3.89	4.54
0064	0070	5.01	65.17	702.57	4.85	0.89	5.75	7.11	4.43	57.16	666.56	4.89	0.93	5.82	7.20
0066	0072	5.03	65.78	587.09	3.42	1.02	4.45	5.46	4.43	53.08	571.39	3.56	0.91	4.48	5.50
0073	0079	2.54	19.25	805.01	3.17	0.40	3.57	4.03	2.31	15.79	760.35	3.20	0.38	3.58	4.04
0027	0029	7.41	93.54	557.64	3.72	0.56	4.28	3.92	6.23	66.95	568.77	4.41	1.07	5.49	5.03
0074	0080	7.08	70.76	604.09	3.52	0.51	4.04	5.03	7.18	69.53	561.14	3.32	0.48	3.80	4.74
0019	0020	7.37	73.75	479.86	3.60	0.84	4.44	4.99	6.96	78.08	462.52	3.48	0.89	4.38	4.91
0071	0077	12.04	121.70	579.33	4.72	0.84	5.56	6.78	11.02	113.54	562.59	4.73	0.84	5.58	6.80
0071	0081R	10.60	114.02	562.32	4.07	1.89	5.96	7.29	9.57	106.92	542.50	4.47	1.45	5.92	7.25
0148	0158	6.36	87.56	749.13	6.24	1.17	7.42	8.61	5.11	72.19	702.39	6.25	1.15	7.41	8.60
0070	0076	4.03	45.10	436.19	3.34	0.59	3.94	4.80	4.02	48.76	404.15	3.06	0.39	3.46	4.22
0076	0084	6.20	47.70	600.92	3.91	0.51	4.43	5.51	4.76	36.96	609.13	4.76	0.72	5.49	6.83
0115	0125	33.45	191.57	470.62	4.04	0.70	4.75	5.40	31.13	197.09	457.98	4.08	0.68	4.77	5.43
0102	0110	3.85	66.80	558.56	3.37	0.53	3.91	4.86	3.32	58.23	540.56	3.54	0.53	4.07	5.06
0144	0154	18.40	243.49	516.21	1.95	0.35	2.31	2.63	17.28	248.39	485.82	1.88	0.28	2.16	2.47
0156	0166	5.60	83.07	381.60	3.77	0.41	4.18	5.07	5.21	77.92	378.35	3.93	0.44	4.37	5.30
0048	0053	3.79	113.97	479.46	2.33	0.36	2.67	3.01	4.79	97.89	469.93	2.68	0.40	3.09	3.48
0061	0067	6.05	71.05	578.36	2.66	0.69	3.36	3.62	5.49	68.14	565.12	2.84	0.74	3.58	3.87
0121	0131	13.26	120.14	486.08	3.68	0.81	4.49	5.11	11.95	116.17	469.43	3.71	0.57	4.29	4.88
0113	0123	4.05	102.82	427.43	3.23	0.43	3.66	3.52	3.64	89.31	417.61	3.35	0.55	3.90	3.75
0127	0137	2.78	30.21	588.66	2.87	0.47	3.34	3.76	2.32	22.38	426.65	2.91	0.61	3.52	3.96
0164	0174	4.45	52.56	730.10	4.61	0.68	5.29	5.62	3.96	46.91	698.13	4.49	0.87	5.37	5.71
0134	0144	4.60	87.61	682.18	2.57	0.22	2.80	3.41	4.12	81.26	653.04	2.53	0.30	2.83	3.45
0129	0139	5.18	71.62	744.32	4.78	1.09	5.88	6.62	4.49	56.04	697.74	5.17	1.11	6.29	7.09
0154	0164	3.99	82.70	516.65	1.97	0.18	2.16	2.61	3.49	73.19	497.88	2.16	0.16	2.33	2.82
0004	0006	5.03	97.92	569.20	2.61	0.49	3.11	2.93	4.14	78.20	558.04	2.79	0.49	3.29	3.09

CAR#	RUN#	WEIGHTED MASS - 1972 PROCEDURE HC	CO	CO2	NO	NO2	NOX	NOXC	WEIGHTED MASS - 1975 PROCEDURE HC	CO	CO2	NO	NO2	NOX	NOXC
0110	0119	64.67	331.51	449.01	0.77	0.18	0.96	0.95	64.70	317.24	442.77	0.71	0.11	0.83	0.92
0031	0034	13.37	131.76	498.21	2.83	0.43	3.27	3.51	12.34	129.02	464.56	2.76	0.40	3.16	3.4
0094	0102	8.59	112.09	494.90	1.83	0.10	1.93	2.27	7.19	101.52	469.35	1.81	0.08	1.89	2.
0130	0140	4.16	33.79	387.44	2.40	0.18	2.59	3.16	4.63	39.04	438.15	2.80	0.20	3.00	3.
0132	0142	5.53	65.68	508.62	2.41	0.26	2.68	3.38	5.64	66.81	554.76	2.74	0.33	3.08	3.
0162	0172	6.47	106.45	616.93	4.20	0.85	5.06	5.69	6.06	103.72	589.11	3.97	0.68	4.65	5.
0139	0149	4.62	55.77	442.49	4.51	0.86	5.38	6.44	4.31	54.26	484.09	4.77	0.78	5.55	6.
0049	0054	5.62	87.31	338.14	2.40	0.29	2.69	3.23	5.56	84.24	322.02	2.35	0.27	2.63	3.
0033	0036	5.84	105.43	360.88	1.75	0.22	1.98	2.55	5.57	102.48	347.12	1.63	0.15	1.79	2.
0161	0171	5.90	69.59	357.84	3.05	0.18	3.23	3.74	5.49	69.02	344.21	2.76	0.18	2.95	3.
0165	0175	5.45	94.66	419.5	4.06	1.15	5.22	6.34	4.76	86.06	402.08	3.95	0.81	4.76	5.78
0119	0129	2.21	29.00	279.74	2.34	0.24	2.58	3.04	2.04	27.17	274.63	2.22	0.17	2.40	2.82
0077	0085	1.89	22.56	309.07	4.74	1.54	6.28	7.93	2.02	21.90	302.27	5.05	1.16	6.22	7.85
0101	0109	3.93	57.93	473.87	2.33	0.16	2.50	3.23	3.64	54.33	439.00	2.10	0.11	2.22	2.87
0093	0101	3.13	31.63	318.44	2.50	0.36	2.87	3.39	2.96	29.24	309.61	2.34	0.33	2.68	3.16
0026	0028	3.67	54.54	299.91	3.23	0.69	3.92	3.47	2.86	45.88	289.21	3.00	0.52	3.53	3.12
0026	0028R	3.29	57.08	304.01	2.98	0.48	3.47	3.17	2.76	47.86	295.69	2.84	0.42	3.27	2.99
0124	0134	5.68	81.47	335.26	1.21	0.04	1.26	1.35	5.19	72.50	307.37	1.32	0.03	1.36	1.46
0111	0120	6.59	76.04	231.43	1.30	0.09	1.40	1.68	5.17	73.41	267.98	1.18	0.04	1.23	1.47
0138	0148	10.96	103.86	264.31	1.54	0.21	1.75	2.00	10.18	96.06	255.20	1.46	0.13	1.60	1.82
0133	0143	8.52	73.05	265.34	2.38	0.24	2.62	3.17	7.92	71.05	253.63	2.15	0.19	2.35	2.84
0025	0027	4.55	51.97	244.00	1.85	0.19	2.05	1.75	4.00	47.63	242.72	1.97	0.17	2.14	1.84
0017	0017	8.13	85.17	296.64	2.18	0.32	2.50	2.26	6.67	79.91	293.34	2.16	0.29	2.46	2.22
0092	0100	31.95	61.72	130.95	0.42	0.03	0.46	0.54	29.76	59.26	123.77	0.38	0.02	0.40	0.47
0056	0042	1.54	21.17	357.56	2.85	0.21	3.07	3.74	1.37	16.61	348.40	2.81	0.34	3.16	3.85
0171	0181	2.18	24.59	330.28	3.66	0.82	4.49	5.47	1.96	20.79	329.80	4.05	0.92	4.98	6.06
0068	0074	2.25	31.34	353.30	4.24	1.42	5.67	7.02	1.88	23.60	344.41	4.58	1.35	5.94	7.36
0085	0093	4.49	47.56	405.01	5.15	1.85	7.01	8.05	4.53	42.79	391.83	5.43	1.75	7.18	8.24
0069	0075	1.93	34.22	396.31	3.82	1.00	4.83	6.00	1.76	34.49	377.30	3.74	1.01	4.76	5.91

CAR#	RUN#	WEIGHTED MASS - 1972 PROCEDURE HC	CO	CO2	NO	NO2	NOX	NOXC	WEIGHTED MASS - 1975 PROCEDURE HC	CO	CO2	NO	NO2	NOX	NOXC
0066	0066	4.55	88.83	662.16	3.11	0.75	3.87	3.35	3.49	65.18	646.42	3.23	0.83	4.07	3.52
0064	0064	5.23	53.43	555.61	3.50	0.70	4.20	3.54	4.91	37.64	542.07	3.72	0.80	4.53	3.81
0029	0029	8.52	85.04	634.07	5.84	2.16	8.00	7.91	7.55	74.16	606.84	5.98	2.48	8.46	8.37
0065	0065	6.59	110.42	475.79	2.73	0.71	3.44	2.90	5.49	94.97	389.29	2.18	0.47	2.66	2.24
0150	0156	4.38	77.04	452.02	4.42	0.42	4.85	4.68	3.87	70.82	459.34	3.55	0.65	4.21	4.07
0043	0048	4.92	64.58	417.03	2.76	0.61	3.38	3.14	4.10	64.46	407.67	2.64	0.58	3.23	3.00
0056	0056	13.40	104.57	496.71	4.79	1.57	6.37	5.46	12.74	93.02	480.20	4.65	1.84	6.49	5.56
0024	0024	11.90	133.55	465.65	2.15	0.27	2.43	2.54	11.71	132.08	468.46	2.12	0.30	2.43	2.54
0104	0104	12.40	147.91	447.61	1.90	0.20	2.10	2.01	11.41	133.35	440.66	2.05	0.21	2.27	2.17
0123	0133	9.91	183.63	583.70	0.95	0.08	1.03	0.95	9.09	175.84	561.06	0.89	0.07	0.96	0.89
0135	0141	2.17	50.88	837.97	2.73	0.46	3.20	3.05	1.67	47.53	808.46	2.51	0.39	2.91	2.78
0113	0113	9.11	171.49	541.97	1.81	0.10	1.91	1.68	7.39	151.19	534.01	1.81	0.17	1.98	1.74
0113	0119R	8.74	161.04	523.48	1.74	0.18	1.92	1.79	6.81	141.22	502.57	1.71	0.19	1.91	1.78
0110	0110	5.03	121.99	554.87	1.67	0.89	2.56	2.35	4.75	114.58	543.06	1.60	0.92	2.52	2.31
0003	0003	2.49	23.94	726.09	3.40	0.66	4.06	4.40	2.17	16.87	707.81	3.39	0.69	4.08	4.41
0004	0004	4.65	88.15	561.05	3.45	0.79	4.24	4.61	4.69	92.79	527.44	3.20	0.73	3.93	4.27
0055	0055	2.18	42.90	346.25	4.68	1.33	6.02	5.28	1.85	26.06	338.42	4.94	1.46	6.42	5.63
0077	0077	2.76	31.93	512.74	2.80	0.59	3.39	2.91	2.49	23.42	419.89	2.87	0.52	3.40	2.91
0105	0105	2.54	20.15	659.14	5.09	1.69	6.78	6.60	2.28	14.00	646.51	5.17	1.82	6.99	6.81
0028	0028	4.25	76.08	483.08	4.72	1.43	6.15	6.08	3.23	57.89	474.88	4.81	1.64	6.46	6.39
0084	0084	5.99	90.85	495.92	4.06	1.13	5.19	4.84	5.28	79.13	476.01	4.23	1.13	5.37	5.01
0123	0123	5.11	45.44	506.00	2.87	0.50	3.37	3.02	4.38	32.03	488.02	2.92	0.53	3.51	3.15
0143	0146	4.73	24.01	509.60	4.39	1.43	5.82	5.58	4.30	22.53	588.96	4.45	1.42	5.88	5.63
0007	0007	6.24	63.76	655.48	5.22	1.75	6.97	7.30	5.52	52.48	644.70	5.12	1.90	7.02	7.36
0073	0073	3.46	31.30	606.06	4.54	1.16	5.75	4.96	3.24	21.38	584.51	4.74	1.33	6.08	5.24
0086	0086	10.46	127.29	453.54	3.33	0.64	3.98	3.80	8.96	108.05	442.62	3.56	0.81	4.38	4.18
0089	0089	6.32	74.91	495.74	3.44	0.53	3.97	3.90	5.83	58.24	681.85	3.07	0.94	4.01	3.94
0087	0087	7.15	105.73	449.51	2.74	0.43	3.17	3.32	6.58	97.41	441.29	2.75	0.41	3.17	3.31
0103	0103	4.35	53.42	453.67	3.02	0.57	3.59	3.47	2.76	37.73	453.35	3.20	0.64	3.85	3.73
0131	0136	7.19	64.09	517.52	3.82	1.16	4.99	4.63	6.56	56.17	495.85	3.91	1.06	4.98	4.62
0067	0067	6.64	89.73	524.45	3.27	0.95	4.22	3.67	6.13	84.52	503.79	3.35	0.97	4.32	3.75
0085	0085	14.90	129.74	468.56	2.81	0.58	3.39	3.04	13.65	110.55	462.20	3.19	0.78	3.97	3.57
0095	0095	11.08	132.48	445.30	2.10	0.32	2.43	2.28	9.50	116.94	435.16	2.22	0.33	2.55	2.39
0014	0014	15.33	133.90	440.26	1.66	0.22	1.88	2.05	12.78	122.39	432.78	1.70	0.24	1.94	2.12
0068	0068	13.84	117.60	501.78	2.72	0.55	3.27	2.80	13.32	114.99	488.52	2.67	0.45	3.13	2.68
0141	0147	10.02	95.97	490.59	3.52	0.76	4.28	3.96	8.38	82.38	517.64	3.65	0.82	4.48	4.14
0006	0006	10.13	84.68	571.74	2.73	0.58	3.31	3.42	9.33	85.35	554.09	2.66	0.52	3.19	3.30
0054	0054	13.49	147.47	383.04	2.66	0.48	3.14	2.67	12.90	146.18	397.64	2.90	0.71	3.61	3.07
0072	0072	29.73	177.90	385.87	1.69	0.27	1.97	1.66	27.80	162.19	391.74	1.94	0.34	2.29	1.93
0018	0018	8.85	94.60	464.99	2.24	0.40	2.65	2.49	7.48	82.44	459.07	2.32	0.41	2.74	2.57
0070	0070	19.25	94.49	418.60	2.75	0.50	3.25	2.82	17.03	89.16	411.58	2.78	0.50	3.28	2.84
0092	0092	7.26	34.13	477.30	2.80	0.46	3.26	3.16	6.69	76.23	471.36	2.73	0.49	3.22	3.13
0063	0063	11.93	182.99	314.33	2.54	0.48	3.04	2.72	10.75	179.21	303.28	2.50	0.44	2.95	2.63
0102	0102	5.88	73.76	307.84	2.04	0.21	2.25	2.23	5.44	77.36	304.38	2.03	0.21	2.25	2.22
0107	0107	7.35	81.27	371.94	1.99	0.25	2.25	1.96	6.53	79.15	353.97	1.87	0.23	2.11	1.84
0116	0116	14.34	150.70	356.02	0.66	0.06	0.72	0.66	17.17	137.59	339.09	0.64	0.05	0.69	0.63
0008	0008	9.08	121.99	443.34	2.50	0.57	3.07	3.30	8.65	123.21	417.50	2.12	0.39	2.52	2.70
0057	0057	10.97	93.98	359.39	2.42	0.68	3.11	2.76	10.34	94.78	345.21	2.34	0.60	2.95	2.62
0039	0039	4.50	45.99	480.80	3.83	1.00	4.83	4.43	3.92	44.14	462.51	3.79	0.92	4.71	4.32
0045	0045	3.04	14.04	484.44	5.09	1.81	6.91	6.32	2.70	12.52	468.52	5.06	1.70	6.77	6.19

		WEIGHTED MASS - 1972 PROCEDURE							WEIGHTED MASS - 1975 PROCEDURE						
CAR#	RUN#	HC	CO	CO2	NO	NO2	NOX	NOXC	HC	CO	CO2	NO	NO2	NOX	NOXC
0071	0071	6.33	47.33	512.72	2.85	0.45	3.30	2.83	6.11	31.55	438.06	2.99	0.42	3.42	2.92
0115	0115	37.85	195.99	454.96	0.81	0.07	0.89	0.76	36.50	194.33	436.92	0.74	0.06	0.80	0.69
0164	0171	5.68	41.54	457.08	2.63	0.38	3.01	2.99	4.84	39.97	441.49	2.66	0.39	3.05	3.03
0127	0132	6.47	43.37	442.44	3.83	0.82	4.65	4.30	6.03	48.50	427.50	3.86	0.90	4.77	4.41
0154	0161	4.64	92.84	477.13	1.13	0.12	1.26	1.18	4.22	92.00	462.26	1.06	0.08	1.15	1.08
0020	0020	4.11	63.91	544.57	4.24	1.00	5.24	4.86	3.67	70.36	470.47	4.29	1.00	5.30	4.93
0042	0042	3.93	55.35	523.53	3.62	1.11	4.74	4.39	3.74	54.94	494.84	3.52	1.04	4.56	4.23
0169	0177	9.46	145.81	432.67	1.15	0.08	1.23	1.11	8.21	169.73	475.53	1.21	0.07	1.29	1.17
0075	0075	9.28	192.60	643.22	1.09	0.12	1.21	1.06	6.92	155.65	640.95	1.16	0.12	1.29	1.12
0081	0081	3.05	47.65	556.45	3.11	0.61	3.73	3.87	2.54	35.30	537.72	3.13	0.58	3.72	3.85
0076	0076	3.40	46.17	541.86	3.60	0.74	4.35	3.50	3.00	39.95	575.52	3.54	0.73	4.27	3.53
0083	0083	5.24	75.23	494.21	3.84	0.41	3.25	2.92	4.56	62.78	495.36	3.10	0.50	3.60	3.24
0117	0117	7.53	63.76	542.19	4.28	0.93	5.22	4.93	4.93	51.41	541.83	4.72	1.18	5.90	5.58
0117	01253	6.06	58.71	575.01	4.93	1.23	6.16	5.82	4.60	45.53	570.23	5.14	1.45	6.59	6.23
0139	0145	6.94	141.51	561.63	1.14	0.09	1.23	1.18	5.70	116.96	661.91	1.30	0.10	1.42	1.35
0133	0138	3.64	94.74	441.64	3.52	0.71	4.23	3.86	2.99	85.48	446.48	4.04	0.91	4.96	4.53
0145	0151	7.54	113.44	424.85	2.59	0.39	2.99	2.97	6.31	89.13	437.44	3.10	0.62	3.73	3.71
0123	0127	11.93	102.36	314.49	2.30	0.37	2.67	2.42	11.14	98.20	306.98	2.43	0.34	2.78	2.51
0033	0033	7.53	90.25	329.01	1.35	0.15	1.50	1.35	7.74	94.01	316.62	1.21	0.11	1.33	1.20
0047	0047	10.33	183.74	467.29	1.54	0.22	1.76	1.56	8.13	108.47	488.29	2.32	0.40	2.72	2.46
0147	0153	9.30	108.13	401.74	1.24	0.10	1.15	1.06	8.97	106.33	396.15	0.98	0.10	1.08	1.00
0111	0111	28.57	59.20	484.91	5.58	1.82	7.40	6.66	26.04	43.87	485.49	5.85	2.13	7.99	7.19
0111	01222	27.33	54.71	499.56	4.62	2.20	6.82	6.18	26.13	46.54	487.59	5.36	2.08	7.45	6.74
0021	0021	3.93	53.83	693.71	4.37	1.42	6.30	6.32	3.30	35.13	677.33	4.82	1.73	6.55	6.57
0027	0027	3.83	73.63	353.41	5.19	1.98	7.18	6.89	3.50	70.69	306.52	5.21	1.86	7.07	6.79
0060	0060	3.53	53.53	703.72	4.78	1.12	5.90	5.58	2.93	33.56	688.83	5.11	1.37	6.49	6.14
0052	0052	2.77	33.25	393.95	6.14	2.56	8.69	7.23	2.53	28.17	373.74	5.96	2.43	8.40	6.98
0079	0079	7.41	85.53	622.20	4.10	0.90	5.00	5.31	6.17	51.75	609.68	4.16	1.03	5.25	5.57
0032	0032	3.40	23.94	344.48	3.08	0.72	3.79	3.76	2.92	13.75	339.98	3.18	0.79	3.98	3.95
0210	0210	3.41	33.89	423.76	4.69	1.38	6.07	6.36	3.19	32.53	408.27	4.58	1.34	5.92	6.21
0013	0013	4.45	77.05	623.47	3.57	0.93	4.50	4.83	3.74	63.73	604.80	3.49	1.22	4.72	5.06
0032	0032	3.84	54.27	594.31	4.93	1.70	6.64	5.85	3.58	51.68	567.25	5.04	1.80	6.84	6.13
0058	0058	3.22	47.78	432.76	5.86	2.06	7.13	6.09	2.84	35.51	412.47	5.18	2.10	7.29	6.23
0119	0121	4.20	47.88	462.19	5.01	1.60	6.62	6.07	3.83	31.91	479.10	5.33	1.98	7.31	6.71
0060	0060	4.44	34.71	535.54	4.12	1.12	5.24	4.35	3.90	23.02	524.79	4.07	1.15	5.23	4.35
0034	0034	2.76	20.14	337.57	4.29	1.01	5.30	5.04	2.55	21.49	393.45	4.27	1.03	5.31	5.04
0114	0114	3.22	45.37	717.53	2.06	0.34	2.31	2.33	2.69	31.84	706.58	3.07	0.47	3.55	3.10
0114	01228	2.94	36.25	713.82	2.70	0.45	3.15	3.05	2.52	24.18	689.56	2.73	0.48	3.22	3.11
0121	0124	5.33	94.44	434.88	3.44	0.58	3.02	3.60	4.39	85.26	473.84	3.62	0.72	4.35	3.99
0121	01308	5.33	90.74	478.15	3.26	0.76	4.02	3.72	4.34	87.27	459.83	3.28	0.73	4.02	3.72
0031	0031	7.78	111.94	586.25	2.15	0.56	2.71	2.56	6.84	109.69	560.37	2.19	0.48	2.68	2.53
0046	0046	5.67	68.81	469.73	3.89	0.83	4.71	4.47	3.98	45.01	362.56	3.50	0.81	4.31	4.09
0097	0097	5.73	57.13	443.64	2.51	0.32	2.44	2.74	4.34	43.65	327.40	2.56	0.44	3.01	2.91
0136	0142	5.71	46.71	424.65	2.19	0.27	2.46	2.42	5.58	46.59	416.64	2.17	0.27	2.44	2.40
0037	0037	3.14	73.63	322.63	2.55	0.29	2.85	2.73	7.03	60.49	324.53	2.93	0.43	3.37	3.19
0050	0050	4.77	93.36	311.14	2.65	0.69	3.35	3.04	4.57	99.95	301.54	2.38	0.59	2.97	2.70
0100	0100	4.94	52.93	460.29	3.32	0.77	4.59	4.41	4.43	51.22	459.80	3.92	0.78	4.70	4.51
0069	0069	7.66	93.34	488.41	3.40	1.46	5.37	4.54	7.01	96.94	475.22	3.36	1.34	5.21	4.49
0093	0093	6.43	114.15	549.39	1.80	0.15	1.95	1.88	5.49	100.80	535.66	1.93	0.16	2.10	2.02
0078	0078	15.48	102.56	396.41	2.84	0.52	3.37	3.32	14.64	96.64	397.25	3.11	0.64	3.76	3.70

		WEIGHTED MASS - 1972 PROCEDURE						WEIGHTED MASS - 1975 PROCEDURE					
CAR#	RUN#	HC	CO	CO2	NO	NO2	NOX	NOXC	HC	CO	CO2	NO	NO2	NOX	NOXC
0098	0098	6.54	46.73	335.45	2.57	0.42	2.99	2.80	6.35	51.09	330.48	2.62	0.42	3.05	2.85
0156	0163	7.42	109.14	468.48	1.92	0.23	2.16	2.16	6.46	85.20	466.02	2.36	0.34	2.70	2.71
0011	0011	20.85	184.56	366.89	1.14	0.08	1.22	1.29	19.21	163.50	365.85	1.39	0.14	1.54	1.63
0016	0016	26.69	124.81	258.09	1.91	0.33	2.14	2.00	27.10	124.32	247.54	1.80	0.31	2.12	1.97
0129	0134	3.58	41.39	321.71	3.23	0.68	3.91	3.58	3.38	41.68	315.71	3.08	0.65	3.74	3.42
0144	0150	20.46	116.92	389.95	3.90	0.76	4.66	4.59	18.74	104.83	434.87	4.17	0.96	5.13	5.05
0170	0180	7.57	77.82	451.36	2.59	0.36	2.95	2.62	6.56	75.61	436.04	2.45	0.32	2.77	2.46
0009	0009	5.98	50.92	409.74	3.78	0.83	4.62	4.85	7.19	45.67	397.23	3.72	0.83	4.56	4.78
0044	0044	10.01	104.68	561.98	3.74	0.87	4.62	5.41	8.33	102.13	540.89	3.54	0.76	4.31	5.04
0146	0152	4.37	108.27	448.23	3.64	0.76	4.40	4.18	6.29	109.65	433.51	3.40	0.66	4.06	3.86
0038	0038	3.97	61.59	698.93	3.52	0.53	4.06	3.85	3.35	50.29	668.26	3.59	0.68	4.27	4.05
0155	0162	6.50	115.41	549.54	3.44	0.79	4.24	4.07	5.10	86.80	543.84	4.03	1.09	5.13	4.93
0155	0172R	5.46	85.89	574.00	3.86	1.01	4.88	4.74	4.30	65.31	560.08	3.14	1.77	4.92	4.77
0034	0034	5.35	53.79	605.62	6.37	0.67	7.04	6.47	4.66	42.83	590.52	6.12	1.38	7.50	6.89
0165	0173	4.16	28.80	528.34	4.52	2.08	6.60	6.41	3.96	26.99	513.67	4.96	1.59	6.56	6.36
0165	0178R	5.13	62.32	536.47	4.67	1.82	6.49	5.62	4.85	40.37	513.18	4.66	1.66	6.32	5.49
0061	0061	5.66	99.95	457.71	4.29	1.29	5.59	4.73	5.15	78.01	445.79	4.33	1.30	5.63	4.82
0166	0174	10.70	105.77	558.24	2.43	0.33	2.77	2.63	9.28	84.49	560.67	2.80	0.48	3.29	3.13
0166	0179R	10.03	94.10	595.99	2.93	0.50	3.44	2.99	8.98	67.05	601.87	3.14	0.92	4.06	3.54
0168	0176	4.46	104.24	722.64	1.97	0.21	2.19	2.04	3.94	97.25	692.29	1.93	0.26	2.19	2.04
0112	0112	12.12	266.61	463.44	0.46	0.06	0.73	0.66	11.30	249.95	449.97	0.69	0.05	0.74	0.67
0091	0091	3.31	46.09	337.39	2.02	0.24	2.27	2.13	3.10	40.90	325.23	2.05	0.25	2.30	2.17
0160	0167	2.25	21.70	320.90	5.03	1.64	6.67	6.31	2.17	20.72	320.30	4.98	3.10	8.08	7.64
0017	0017	3.25	51.49	466.56	3.89	0.97	4.86	4.56	2.37	46.65	631.88	3.79	0.96	4.66	4.38
0030	0030	3.38	54.48	706.88	3.70	0.90	4.61	4.66	3.16	50.45	666.83	3.42	0.81	4.24	4.29
0109	0109	3.09	59.24	619.57	2.47	0.65	3.13	2.78	2.83	46.31	599.85	2.85	0.45	3.30	2.94
0053	0053	4.07	39.73	612.75	5.79	2.28	8.06	6.85	3.65	33.01	589.93	5.77	2.13	7.91	6.71
0080	0080	7.88	145.83	563.42	3.44	0.49	3.94	4.08	6.48	134.32	549.23	3.38	0.57	3.96	4.10
0019	0019	10.98	142.87	521.14	1.47	0.73	2.20	2.07	10.50	134.58	496.62	1.80	0.54	2.34	2.20
0022	0022	4.80	48.42	496.06	3.50	0.81	4.32	4.55	4.31	45.02	489.47	3.57	0.88	4.46	4.70
0099	0099	27.26	171.11	410.61	0.83	0.05	0.89	0.96	18.90	130.47	355.07	0.78	0.05	0.84	0.81
0141	0149	15.56	122.37	499.02	2.52	0.43	2.95	2.70	15.54	123.71	471.89	2.26	0.35	2.62	2.40
0137	0143	9.68	115.78	501.30	2.39	0.28	2.67	2.48	9.91	114.26	479.52	2.14	0.34	2.48	2.31
0138	0144	18.14	135.55	497.59	2.67	0.57	3.24	3.02	18.82	135.99	469.46	2.52	0.44	2.96	2.76
0151	0157	7.60	76.90	564.79	3.84	1.19	5.03	4.85	7.20	73.55	545.50	3.92	1.02	4.95	4.78
0153	0160	3.80	63.25	606.90	2.81	0.56	3.37	3.19	3.43	58.90	737.10	2.73	0.48	3.22	3.04
0043	0043	4.50	50.47	560.66	5.57	1.92	7.50	6.99	3.59	33.59	554.64	5.89	2.00	7.90	7.36
0035	0035	4.86	73.54	626.46	5.33	1.40	6.64	6.03	3.99	65.32	610.73	5.02	1.88	6.90	6.27
0012	0012	5.51	95.50	516.22	3.88	1.01	4.90	5.22	5.18	91.88	514.80	3.89	1.04	4.94	5.26
0025	0025	12.70	112.20	499.55	3.37	0.84	4.21	4.59	11.46	102.53	498.95	3.55	0.91	4.48	4.87
0122	0126	7.35	114.12	448.02	3.32	0.75	4.07	3.70	6.91	100.50	437.26	3.70	0.85	4.55	4.14
0124	0129	7.24	99.34	540.93	3.07	0.59	3.67	3.40	6.79	96.19	508.55	3.03	0.52	3.55	3.29
0134	0139	7.14	74.52	410.11	3.55	0.73	4.28	4.03	5.39	68.02	374.67	3.61	0.80	4.42	4.16
0096	0096	4.87	54.08	372.02	2.41	0.30	2.72	2.66	4.63	51.18	371.34	2.47	0.32	2.79	2.73
0118	0118	12.62	145.50	398.01	0.79	0.06	0.86	0.95	11.94	140.19	378.45	0.71	0.06	0.78	0.77
0149	0155	4.74	59.87	627.98	4.16	0.96	5.12	5.19	4.28	50.03	601.15	4.38	1.11	5.50	5.57
0158	0165	5.29	100.66	655.62	3.12	0.66	3.79	3.84	4.07	81.25	643.40	3.73	0.93	4.66	4.73
0005	0005	4.48	58.93	636.57	3.92	0.80	4.73	5.29	4.12	52.56	614.91	4.05	0.92	4.97	5.56
0041	0041	8.36	103.81	627.70	2.29	0.34	2.64	2.88	6.55	77.93	612.67	2.32	0.46	2.78	3.04
0108	0108	4.49	71.18	587.61	3.77	0.88	4.65	4.16	3.93	59.06	492.66	3.83	0.89	4.73	4.23

CAR#	RUN#	WEIGHTED MASS - 1972 PROCEDURE							WEIGHTED MASS - 1975 PROCEDURE						
		HC	CO	CO2	NO	NO2	NOX	NOXC	HC	CO	CO2	NO	NO2	NOX	NOXC
0049	0049	4.91	54.23	661.72	5.20	1.86	7.07	6.24	3.99	31.12	541.79	5.49	2.13	7.63	6.73
0051	0051	4.82	39.86	562.37	2.54	0.85	3.30	2.52	4.39	33.28	548.85	2.62	0.45	3.08	2.59
0090	0090	5.49	79.29	545.93	3.14	0.66	3.80	3.85	5.00	69.62	530.18	3.30	0.65	3.96	4.02
0125	0129	7.55	88.87	499.00	4.47	1.00	5.47	6.37	7.12	84.26	482.61	4.60	1.12	5.73	6.67
0142	0148	10.75	89.28	389.34	2.89	0.52	3.41	3.24	9.79	82.02	382.55	3.02	0.54	3.56	3.39
0023	0023	10.69	131.89	384.64	1.29	0.13	1.42	1.52	10.22	129.07	371.80	1.23	0.13	1.36	1.46
0132	0137	4.66	45.32	500.08	3.12	0.50	3.62	3.41	4.38	39.51	485.42	3.15	0.55	3.70	3.49
0126	0131	4.93	84.83	541.14	4.64	1.25	5.89	5.40	4.76	84.17	521.41	4.57	1.21	5.79	5.30
0126	C140R	5.09	84.86	531.77	4.56	1.30	5.87	5.68	4.85	84.26	513.17	4.54	1.17	5.72	5.54
0143	0149	4.94	80.69	524.50	1.30	0.43	1.74	1.62	4.57	77.79	517.59	1.19	0.21	1.40	1.31
0157	0164	2.58	29.65	596.86	2.59	0.56	3.15	3.20	2.29	22.92	577.36	2.71	0.57	3.29	3.34
0167	0175	2.41	33.70	430.58	2.79	0.59	3.39	3.16	2.24	28.23	430.01	2.93	0.56	3.49	3.26
0074	0074	3.23	28.31	524.80	3.44	0.74	4.18	3.57	2.92	20.26	502.66	3.58	0.68	4.26	3.64
0148	0154	16.79	72.25	522.12	5.86	2.02	7.88	7.54	15.75	99.51	506.99	5.59	1.89	7.49	7.16
0148	C154R	16.84	76.17	532.42	5.51	2.20	7.71	7.21	16.13	70.26	509.98	5.57	2.20	7.78	7.28
0152	0159	4.75	56.39	542.74	4.58	0.88	5.47	5.08	4.21	47.53	530.52	4.85	1.58	6.43	5.97
0062	0062	3.30	43.13	449.21	3.03	0.59	3.62	3.08	2.90	37.57	432.36	2.96	0.51	3.38	2.87
0163	0170	4.48	51.59	349.84	4.34	1.18	5.52	5.43	3.98	43.58	337.70	4.32	1.17	5.49	5.40
0015	0015	5.57	88.18	284.66	1.38	0.12	1.51	1.40	5.28	84.40	278.36	1.36	0.14	1.51	1.60
0088	0088	2.80	45.29	304.90	2.48	0.38	2.84	2.84	2.49	41.78	299.31	2.27	0.36	2.64	2.61
0036	0036	3.80	38.98	313.17	1.74	0.18	1.93	1.76	3.47	37.19	314.52	1.64	0.16	1.81	1.45
0101	0101	4.73	42.49	273.08	1.82	0.24	2.06	2.07	4.90	40.05	268.92	1.71	0.18	1.90	1.91
0026	0026	6.59	95.33	275.02	1.33	0.12	1.46	1.44	5.80	91.50	276.77	1.39	0.11	1.51	1.49
0031	0031	4.94	65.28	261.52	1.96	0.28	2.25	2.24	4.89	61.99	253.57	1.89	0.23	2.13	2.12
0106	0106	4.45	67.84	174.53	1.71	0.53	2.24	2.00	4.13	66.51	169.20	1.56	0.31	1.97	1.67
0082	0082	7.51	82.53	227.89	1.76	0.21	1.98	1.78	7.18	78.23	231.44	1.90	0.22	2.13	1.91
0159	0166	5.59	60.37	217.17	1.79	0.22	2.02	1.94	5.42	56.47	211.67	1.80	0.18	1.99	1.91
0162	0169	15.77	35.81	139.66	1.24	0.13	1.37	1.31	14.35	35.83	144.69	1.18	0.10	1.29	1.24
0130	0135	7.58	67.55	165.08	1.16	0.08	1.25	1.19	7.62	66.29	162.34	1.11	0.08	1.19	1.13

		WEIGHTED MASS - 1972 PROCEDURE							WEIGHTED MASS - 1975 PROCEDURE						
CAR#	RUN#	HC	CO	CO2	NO	NO2	NOX	NOXC	HC	CO	CO2	NO	NO2	NOX	NOXC
C119	0125	6.34	105.14	944.62	4.84	1.93	6.77	6.90	4.35	68.94	929.56	5.11	2.05	7.17	7.30
0079	0084	5.24	97.62	826.93	5.29	3.00	8.30	8.20	4.46	67.18	810.87	6.22	3.26	9.48	9.37
0110	0118	2.85	52.96	590.93	4.06	0.78	4.85	5.03	2.52	43.38	565.48	3.92	0.80	4.72	4.95
0153	0166	2.93	44.05	687.33	5.54	2.87	8.41	8.42	2.62	37.23	666.74	5.40	2.90	8.30	8.32
0111	0119	2.79	36.74	710.65	3.92	0.68	4.60	4.95	2.58	27.54	701.14	3.91	0.71	4.62	4.97
0034	0037	5.14	114.27	699.27	2.37	0.40	2.47	2.39	4.20	104.68	664.80	2.03	0.36	2.40	2.33
0133	0141	15.28	193.01	498.57	2.38	0.56	2.95	2.76	12.91	166.52	486.48	2.45	0.68	3.13	2.93
0122	0130	8.92	106.80	454.41	2.94	0.63	3.58	3.38	6.51	67.65	461.58	3.56	1.07	4.64	4.39
0156	0167	6.44	111.19	460.95	4.36	1.21	5.57	5.69	5.48	98.91	446.73	4.15	1.15	5.31	5.42
0048	0052	10.43	175.24	352.05	1.38	0.22	1.61	1.64	10.13	175.72	339.15	1.23	0.18	1.42	1.44
0055	0058	8.56	100.38	607.45	3.79	2.33	6.13	6.04	7.51	88.43	589.73	4.04	1.80	5.84	5.75
0152	0162	5.39	59.48	701.86	4.57	2.17	6.75	7.44	4.77	50.66	690.99	4.80	2.40	7.20	7.94
0152	0171R	5.62	57.38	707.93	5.26	2.28	7.55	7.59	4.75	40.31	696.24	5.52	2.54	8.07	8.12
0065	0070	10.54	110.48	384.55	2.22	0.29	2.51	2.55	9.57	99.65	370.48	1.89	0.27	2.16	2.19
0082	0103	2.15	29.42	926.20	5.47	1.46	6.93	7.65	1.73	18.69	912.33	5.97	1.74	7.72	8.52
0082	0111R	1.94	17.15	943.64	5.43	1.38	6.82	7.14	1.57	12.69	927.04	5.44	1.39	6.84	7.16
0097	0104	2.66	23.30	815.17	6.16	3.60	9.76	9.76	2.57	23.69	783.54	6.37	3.00	9.38	9.38
0012	0014	6.14	92.01	574.34	3.29	1.42	4.71	4.25	5.27	73.45	568.65	3.60	1.28	4.88	4.41
0004	0005	4.75	105.34	625.52	2.13	0.33	2.43	2.39	4.04	75.93	622.74	2.62	0.38	3.00	2.96
0018	0019	8.24	226.46	491.65	1.58	0.17	1.76	1.63	7.53	207.13	491.19	1.69	0.15	1.85	1.72
0052	0057	5.47	140.21	599.55	2.20	0.43	2.63	2.61	5.66	142.29	577.04	2.04	0.32	2.37	2.35
0052	0065R	7.07	156.60	607.77	2.34	0.52	2.87	2.87	6.63	151.19	577.11	2.14	0.36	2.51	2.50
0016	0012	3.00	27.49	386.27	3.23	0.92	4.15	3.75	2.75	21.45	439.93	3.35	0.94	4.30	3.88
0057	0060	3.23	47.36	738.66	4.54	1.17	5.71	5.59	2.94	36.68	704.74	4.13	1.68	5.82	5.69
0102	0105	1.71	23.89	870.76	3.52	0.82	4.34	4.31	1.51	18.38	857.01	3.58	0.72	4.31	4.27
0126	0134	1.06	11.58	823.53	2.91	0.44	3.35	3.66	1.01	7.96	797.98	2.90	0.38	3.29	3.59
0137	0146	2.10	22.28	717.76	4.41	2.53	6.95	6.59	1.96	20.91	693.09	4.86	2.21	7.08	6.71
0026	0029	3.47	43.28	647.19	5.28	2.38	7.67	7.38	3.05	35.48	631.05	5.11	2.61	7.72	7.43
0027	0030	1.59	22.69	597.50	2.96	0.54	3.51	3.38	1.52	15.96	547.31	3.31	0.88	4.20	4.04
0038	0039	5.87	88.04	700.27	5.21	1.74	6.95	6.60	4.43	55.64	681.16	5.41	1.82	7.24	6.87
0075	0081	4.64	37.04	620.80	4.66	2.11	6.77	6.70	3.84	31.91	597.59	4.36	2.27	6.63	6.56
0037	0035	9.46	170.84	490.48	3.08	0.87	3.95	3.51	8.31	153.70	476.02	3.21	0.90	4.12	3.65
0037	0042R	9.66	173.60	503.28	3.18	0.81	4.00	4.09	8.28	151.91	480.56	3.29	0.81	4.10	4.20
0070	0074	3.67	84.67	733.10	3.42	0.79	4.22	4.27	2.96	63.56	717.87	3.51	0.81	4.32	4.38
0095	0098	3.06	30.79	659.79	5.81	2.39	8.20	8.06	2.69	14.34	640.80	6.08	1.73	7.82	7.68
0064	0067	5.85	119.52	589.55	2.16	0.35	2.52	2.47	5.04	89.86	578.98	2.27	0.39	2.67	2.62
0089	0093	5.40	72.20	570.14	3.63	0.98	4.61	4.57	5.02	60.29	555.13	3.82	0.98	4.81	4.77
0090	0096	3.40	35.90	428.30	4.45	1.50	5.96	5.73	2.68	19.82	416.10	4.58	1.64	6.22	5.98
0050	0053	15.87	70.02	356.19	3.52	1.39	4.92	4.99	15.51	73.33	360.73	3.53	1.48	5.02	5.10
0130	0138	10.81	114.33	511.67	3.22	1.13	4.35	4.05	9.80	100.28	501.76	3.19	1.23	4.43	4.12
0139	0147	19.06	188.91	467.64	1.96	0.40	2.36	2.30	17.14	177.08	480.09	1.85	0.41	2.26	2.21
0084	0092	6.10	100.88	459.11	3.26	0.57	3.83	3.79	5.45	83.94	449.21	3.35	0.85	4.21	4.16
0084	0095R	8.23	113.05	439.25	3.05	0.78	3.84	3.74	8.40	96.63	426.97	3.07	0.78	3.85	3.75
0103	0110	13.35	104.15	393.40	2.92	0.93	3.85	4.04	18.34	89.50	435.48	3.01	0.94	3.96	4.15
0141	0148	16.91	176.04	335.37	1.27	0.25	1.52	1.49	16.40	167.24	327.19	1.33	0.26	1.59	1.55
0091	0100	10.88	106.34	550.63	3.21	1.45	4.67	4.59	10.39	104.85	534.58	3.06	1.37	4.44	4.36
0100	0108	9.07	55.96	555.60	5.14	1.73	6.87	6.98	7.94	46.98	545.11	5.27	1.90	7.17	7.28
0150	0159	7.43	97.91	376.35	1.66	0.39	2.05	2.26	6.02	88.60	372.09	1.69	0.31	2.01	2.21
0071	0076	4.87	45.16	506.17	3.60	1.72	5.32	5.57	4.16	43.67	476.23	3.63	1.31	4.95	5.18
0115	0120	6.62	83.97	389.42	2.39	0.55	2.94	3.32	5.45	72.17	377.38	2.60	0.52	3.13	3.54

CAR#	RUN#	WEIGHTED MASS - 1972 PROCEDURE							WEIGHTED MASS - 1975 PROCEDURE						
		HC	CO	CO2	NO	NO2	NOX	NOXC	HC	CO	CO2	NO	NO2	NOX	NOXC
0165	0175	11.09	135.93	604.69	3.28	1.06	4.34	4.01	10.24	118.63	578.38	3.38	1.04	4.43	4.09
0029	0028	5.83	99.45	541.50	7.14	4.39	11.53	10.58	5.26	79.43	524.93	7.06	4.50	11.56	10.61
0054	0059	11.77	95.06	484.10	5.07	1.84	6.93	6.63	10.10	81.44	474.70	5.02	2.06	7.09	6.78
0073	0078	4.58	59.32	607.11	2.36	0.61	2.98	3.04	3.82	54.81	583.73	2.49	0.46	2.96	3.02
0148	0157	6.31	75.10	429.76	3.21	0.74	3.96	4.24	4.90	61.08	417.68	3.37	0.66	4.03	4.32
0096	0101	22.21	78.03	522.93	3.42	1.04	4.46	4.39	18.33	73.79	505.44	3.19	1.04	4.24	4.17
0143	0158	5.78	29.07	453.37	3.98	0.75	4.73	5.06	4.11	20.62	445.39	4.07	0.72	4.80	5.14
0008	0008	3.50	43.81	548.71	4.61	1.87	6.48	5.68	3.38	41.78	539.73	4.66	1.75	6.41	5.62
0081	0085	6.16	70.23	566.53	5.54	0.95	6.50	6.81	5.50	57.54	544.87	5.67	1.23	6.90	7.23
0021	0022	3.89	35.85	483.17	5.76	2.18	7.94	7.27	3.48	31.22	460.41	5.29	2.35	7.64	7.00
0162	0170	7.81	99.27	499.02	2.30	1.33	4.13	4.13	7.34	94.79	472.69	2.97	0.99	3.97	3.97
0171	0181	3.23	20.52	526.49	5.28	1.71	6.99	7.30	2.97	18.65	506.99	4.88	1.95	6.83	7.13
0134	0139	9.39	146.54	524.30	1.66	0.33	1.99	1.86	8.99	147.32	510.19	1.56	0.23	1.85	1.72
0005	0004	5.68	83.50	701.56	4.16	1.87	6.03	6.13	5.18	76.39	655.26	4.34	1.39	5.74	5.83
0135	0142	4.03	36.43	707.98	4.94	3.14	7.98	7.37	3.82	27.18	692.37	4.99	3.15	8.15	7.52
0020	0023	12.15	81.90	688.49	4.76	2.54	7.31	6.70	11.02	82.15	684.56	5.04	2.33	7.38	6.76
0080	0086	14.37	203.58	538.50	2.32	0.38	3.20	3.29	9.56	144.04	545.04	3.68	0.71	4.40	4.52
0076	0081	8.09	139.04	524.74	4.47	1.71	6.18	6.11	5.77	77.40	537.36	5.46	2.53	8.00	7.90
0166	0176	4.54	47.87	690.14	6.11	3.50	9.61	8.87	4.31	46.74	661.26	6.09	3.44	9.54	8.81
0010	0010	4.09	46.61	553.65	4.90	2.14	7.05	5.96	3.77	37.65	553.20	5.09	2.15	7.25	6.13
0063	0068	2.37	23.78	422.74	4.45	1.83	6.29	6.13	2.37	23.40	408.87	4.44	1.61	6.05	5.90
0106	0114	5.64	81.63	696.84	5.88	3.08	8.96	9.34	4.90	55.66	688.39	6.44	3.34	9.78	10.20
0114	0116	3.71	65.55	467.64	2.46	1.77	4.23	4.51	3.00	49.82	467.71	3.03	1.73	4.76	5.09
0121	0129	2.52	46.47	477.14	4.77	1.68	6.46	5.93	1.92	28.69	473.97	5.07	2.04	7.12	6.60
0042	0046	3.60	44.76	444.48	5.18	1.62	6.81	6.69	3.34	33.09	436.98	5.43	1.86	7.35	7.23
0074	0079	7.83	137.79	504.21	2.64	0.58	3.23	3.21	5.11	104.77	496.69	2.80	0.61	3.41	3.40
0049	0050	5.92	85.04	597.34	3.48	0.92	4.40	4.51	5.31	70.50	579.51	3.82	1.00	4.83	4.95
0022	0021	36.58	168.58	429.82	1.40	0.28	1.69	1.55	35.15	163.06	409.26	1.35	0.19	1.54	1.42
0170	0183	4.00	52.26	567.83	6.06	2.50	8.56	8.94	3.86	49.17	552.28	6.15	2.35	8.50	8.88
0006	0006	2.58	20.00	381.48	3.36	1.62	4.98	4.73	2.51	14.16	377.34	3.59	1.64	5.24	4.97
0144	0153	2.26	22.01	365.82	4.04	1.71	5.76	5.95	2.10	19.24	352.63	4.32	1.49	5.82	6.01
0149	0160	5.20	41.09	662.70	5.20	2.56	7.76	8.55	4.78	38.49	634.54	5.36	2.67	8.04	8.85
0151	0161	3.14	39.48	503.67	3.44	1.36	4.80	5.30	2.69	33.64	576.49	3.69	1.33	5.02	5.53
0157	0168	3.02	51.12	773.72	5.07	3.29	8.37	8.38	2.99	38.48	749.94	5.62	3.23	8.86	8.87
0014	0015	6.29	89.54	671.18	4.30	0.95	5.26	4.75	5.54	59.14	659.63	4.48	1.33	5.81	5.25
0129	0137	2.22	28.03	397.19	3.67	0.78	4.46	4.96	1.93	24.22	389.08	3.70	0.73	4.44	4.93
0140	0144	2.17	19.41	512.51	5.93	3.43	9.36	8.88	2.05	16.60	495.80	6.14	3.19	9.34	8.86
0078	0083	2.39	19.07	711.15	4.32	1.84	6.17	6.14	1.97	15.37	689.73	4.56	1.68	6.24	6.22
0117	0122	3.99	46.13	604.89	5.07	2.38	7.46	8.44	3.27	32.22	592.97	5.48	2.43	7.92	8.96
0083	0090	4.55	69.28	575.05	4.52	2.36	6.88	6.66	4.07	58.38	564.90	4.95	2.38	7.33	7.10
0125	0132	4.87	36.87	527.49	5.61	3.88	9.49	8.79	4.52	33.69	502.37	5.68	4.01	9.70	8.98
0118	0124	9.10	119.23	423.88	1.49	0.74	2.24	2.53	8.10	117.40	412.56	1.52	0.58	2.10	2.38
0159	0169	9.63	100.14	561.53	4.27	2.03	6.31	6.32	9.10	90.32	594.90	4.45	1.75	6.20	6.21
0159	0174R	7.86	96.07	550.46	4.10	2.62	6.73	6.26	7.27	87.69	538.88	4.21	2.40	6.61	6.15
0032	0033	3.99	51.26	455.88	3.19	0.97	4.16	3.82	3.79	49.74	445.71	3.22	0.84	4.07	3.74
0107	0113	1.96	136.98	386.11	1.24	0.35	1.59	1.65	[illegible]	[illegible]	377.44	1.26	0.28	1.54	1.61
0113	0121	7.89	77.35	504.65	5.11	2.01	7.12	8.27	[illegible]	[illegible]	369.96	5.26	2.24	7.50	8.49
0033	0038	8.63	109.73	496.83	4.54	1.70	6.24	5.73	7.41	93.04	486.33	4.90	1.84	6.74	6.19
0044	0043	8.10	95.05	324.47	0.94	0.18	1.12	1.12	7.58	82.89	327.16	1.10	0.17	1.27	1.27
0053	0055	4.87	65.96	386.67	3.26	0.82	4.09	4.15	4.08	53.03	379.79	3.46	0.93	4.40	4.47

CAR#	RUN#	WEIGHTED MASS - 1972 PROCEDURE							WEIGHTED MASS - 1975 PROCEDURE						
		HC	CO	CO2	NO	NO2	NOX	NOXC	HC	CO	CO2	NO	NO2	NOX	NOXC
0109	0117	6.01	76.35	376.82	1.62	0.29	1.91	2.03	5.46	71.11	354.17	1.56	0.20	1.77	1.88
0066	0072	5.53	56.59	693.61	4.99	2.21	7.20	7.24	5.45	51.49	673.28	5.16	2.11	7.27	7.31
0077	0077	24.07	70.58	556.85	5.56	1.32	6.88	7.19	20.33	62.72	566.64	6.01	1.33	7.35	7.69
0085	0088	7.84	15.26	399.97	4.32	1.77	6.10	6.03	7.57	13.69	397.10	4.50	1.46	5.97	5.90
0104	0115	32.80	54.62	586.64	4.55	3.25	7.80	8.88	31.38	48.62	574.54	4.84	3.02	7.87	8.95
0127	0135	4.92	53.94	388.48	1.44	0.11	1.56	1.69	4.58	51.45	378.36	1.37	0.08	1.46	1.58
0160	0177	6.39	66.69	505.18	3.70	0.83	4.54	4.19	5.92	60.44	492.67	3.72	0.95	4.68	4.32
0013	0013	2.61	29.59	518.10	3.09	0.60	3.69	3.33	2.22	22.55	494.19	3.09	0.49	3.59	3.24
0120	0127	5.52	46.02	318.84	2.40	0.34	2.74	2.97	4.65	45.58	309.76	2.25	0.28	2.54	2.75
0154	0164	5.18	33.77	332.74	4.49	2.55	7.25	8.12	4.82	30.75	328.91	4.81	2.37	7.18	8.05
0035	0036	10.42	103.70	410.79	2.03	0.42	2.45	2.26	10.90	105.20	397.46	2.03	0.34	2.37	2.18
0061	0064	6.66	87.33	561.06	4.69	1.99	6.68	6.83	5.92	74.50	546.90	4.86	2.04	6.90	7.06
0124	0131	2.86	48.02	701.59	2.94	0.67	3.62	3.42	2.71	41.26	664.17	3.65	1.03	4.69	4.43
0002	0001	3.54	26.15	544.19	3.67	3.12	6.79	6.86	3.49	23.06	526.81	3.61	3.09	6.71	6.78
0045	0049	3.50	54.31	489.72	3.53	1.96	5.49	5.63	3.13	47.40	664.29	3.89	1.71	5.59	5.73
0129	0136	6.02	92.22	399.64	3.12	0.41	3.54	3.80	4.46	43.14	408.36	3.82	0.62	4.45	4.78
0066	0071	6.26	65.28	505.72	3.17	0.77	3.95	3.96	5.98	59.00	486.24	3.15	0.67	3.82	3.84
0058	0062	2.50	25.87	367.01	2.51	0.26	2.78	2.30	2.23	20.96	353.02	2.44	0.23	2.70	2.71
0025	0026	2.09	19.94	726.28	3.95	1.40	5.35	5.04	1.78	11.69	711.03	3.98	1.32	5.30	5.00
0131	0140	3.56	29.94	704.09	3.99	1.96	5.95	5.53	3.11	22.76	683.84	4.25	1.74	6.00	5.58
0131	0149R	4.55	33.75	749.22	4.58	1.92	6.50	6.26	3.62	24.35	724.90	4.83	1.59	6.42	6.18
0003	0002	2.94	35.23	643.31	3.79	1.14	4.94	4.71	2.66	29.02	622.84	3.70	1.34	5.05	4.81
0088	0094	4.13	63.16	841.23	4.17	1.01	5.19	5.16	3.94	55.70	803.93	4.02	1.00	5.03	5.01
0067	0073	10.22	95.30	669.54	3.28	1.16	4.44	4.43	9.20	84.63	658.02	3.37	0.96	4.34	4.33
0147	0156	6.06	53.93	651.25	3.52	0.73	4.25	4.29	5.20	33.37	651.82	3.87	1.07	4.95	4.99
0060	0065	7.50	98.41	499.53	1.90	0.41	2.31	2.28	7.44	100.04	476.52	1.82	0.29	2.12	2.08
0069	0075	6.10	54.25	563.16	4.78	1.44	6.22	6.03	5.52	47.94	543.98	4.88	1.42	6.31	6.11
0153	0163	8.80	89.70	604.79	3.94	1.91	5.86	6.57	8.73	90.89	594.46	4.11	1.48	5.59	6.27
0167	0178	12.34	104.49	651.13	3.80	0.91	4.71	5.09	10.14	98.82	624.90	3.92	0.88	4.81	5.19
0169	0180	6.05	42.25	457.53	5.59	3.51	9.10	9.75	5.43	36.43	644.40	5.57	2.51	8.08	8.66
0051	0051	2.49	39.63	382.97	4.19	1.53	5.73	5.82	2.06	24.58	439.67	4.61	1.46	6.08	6.17
0051	0056R	2.77	33.23	501.11	4.28	1.97	6.35	6.45	1.85	21.23	494.65	4.60	1.97	6.58	6.68
0099	0107	3.72	64.21	465.38	5.13	1.85	7.03	6.99	2.72	49.98	459.71	5.29	2.01	7.31	7.26
0136	0145	4.87	46.32	650.09	5.84	3.96	9.80	9.30	4.55	44.76	627.66	6.10	3.85	9.96	9.45
0007	0007	4.05	54.28	566.29	5.37	1.86	7.23	6.33	3.43	46.06	550.53	5.52	2.08	7.61	6.67
0036	0034	3.66	34.38	438.23	5.22	2.52	7.74	6.99	3.06	24.78	427.29	5.44	2.59	8.03	7.25
0023	0018	4.26	50.13	458.88	3.49	0.96	4.45	4.10	3.77	38.79	457.78	3.76	1.06	4.83	4.45
0039	0040	14.02	259.07	378.21	0.74	0.18	0.92	0.97	11.01	204.00	398.90	1.24	0.22	1.47	1.47
0059	0063	5.76	87.98	427.70	3.01	0.42	3.43	3.51	4.27	43.54	441.71	3.66	0.79	4.45	4.55
0097	0097	3.31	51.32	560.95	6.29	3.05	9.34	8.98	3.41	40.32	549.39	6.48	2.98	9.47	9.11
0015	0025	5.05	53.93	474.19	4.31	1.73	6.04	5.70	4.24	37.76	470.67	4.64	1.77	6.41	6.05
0031	0032	4.55	34.85	568.69	7.01	5.33	12.35	11.14	4.16	27.88	573.89	7.41	5.42	12.84	11.59
0142	0151	4.49	71.78	490.86	4.41	2.43	6.84	7.12	4.29	53.02	487.32	4.96	2.80	7.85	8.17
0024	0024	2.93	7.80	783.13	5.34	2.54	7.88	7.49	2.88	6.68	766.64	5.91	2.65	8.57	8.14
0043	0045	3.25	28.60	688.68	3.72	0.53	4.26	4.25	3.49	26.14	627.26	4.07	0.81	4.89	4.88
0112	0126	5.53	53.10	663.98	5.85	2.06	7.91	8.74	5.11	57.13	632.40	5.85	2.11	7.96	8.79
0105	0112	3.75	47.74	707.17	3.30	1.36	4.67	4.86	3.50	43.12	627.26	3.70	1.28	4.99	5.20
0040	0041	5.38	31.24	636.71	2.85	0.59	3.44	3.44	5.08	81.26	622.64	2.82	0.50	3.32	3.33
0030	0031	12.57	146.79	597.95	2.26	0.43	2.69	2.61	12.17	140.49	575.32	2.12	0.35	2.48	2.40
0030	0047R	12.07	199.84	772.03	2.72	0.33	3.06	2.91	11.62	181.11	689.69	2.52	0.43	2.95	2.81

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES — WASHINGTON FEDERAL CYCLE RESULTS IN GRAMS PER MILE —

CAR#	RUN#	WEIGHTED MASS - 1972 PROCEDURE							WEIGHTED MASS - 1975 PROCEDURE						
		HC	CO	CO2	NO	NO2	NOX	NOXC	HC	CO	CO2	NO	NO2	NOX	NOXC
0087	0089	7.37	78.44	560.07	4.58	1.87	6.45	6.29	6.06	60.82	543.03	4.78	1.92	6.71	6.54
0062	0069	8.00	79.20	602.85	4.40	1.85	6.26	6.50	7.84	76.46	594.17	4.53	1.62	6.15	6.39
0132	0143	8.84	137.38	637.57	4.29	1.14	5.43	5.94	8.33	136.59	613.02	4.07	0.92	4.99	5.46
0163	0173	6.37	100.41	609.59	5.02	1.63	6.65	6.95	5.73	87.03	588.65	5.15	1.47	6.62	6.92
0011	0011	6.15	47.98	746.04	6.08	3.28	9.36	7.78	5.79	45.08	690.62	5.78	2.44	8.22	6.84
0094	0102	1.98	22.83	383.65	2.66	0.39	3.06	3.20	1.84	15.99	428.55	2.71	0.35	3.06	3.21
0145	0152	2.88	35.70	429.61	4.42	1.59	6.02	6.27	2.71	33.16	419.53	4.59	1.55	6.14	6.40
0101	0109	3.79	38.70	550.36	4.48	1.27	5.75	5.84	3.36	34.59	532.70	4.64	1.42	6.06	6.15
0123	0178	4.42	67.79	501.20	3.60	1.57	5.18	4.83	4.10	62.97	487.21	3.67	1.45	5.13	4.79
0009	0009	6.00	131.78	412.47	2.46	0.59	3.06	2.65	5.83	123.57	381.53	2.23	0.45	2.68	2.32
0155	0165	8.56	44.48	359.04	3.89	0.85	4.75	5.13	6.51	33.70	348.56	3.96	1.02	4.99	5.39
0041	0044	7.35	144.29	603.36	2.19	0.60	2.79	2.83	6.67	134.86	579.30	2.10	0.43	2.54	2.57
0161	0172	17.28	110.48	366.52	2.36	1.10	3.47	3.48	14.45	102.06	353.84	2.65	1.09	3.74	3.76
0028	0027	6.18	71.73	397.12	2.91	0.80	3.71	3.47	5.93	68.53	384.50	2.86	0.68	3.54	3.32
0046	0049	4.42	49.75	386.20	3.02	0.87	3.90	3.99	3.68	44.23	379.94	3.15	0.75	3.91	4.00
0047	0054	5.91	47.32	348.43	2.71	0.43	3.15	3.19	4.85	45.54	343.78	2.61	0.38	3.00	3.04
0139	C150	3.26	27.27	344.12	2.95	0.41	3.37	3.65	3.52	25.69	335.22	2.77	0.35	3.13	3.38
0139	0154R	4.17	30.67	336.27	2.32	0.79	3.12	3.22	4.09	28.76	327.71	2.32	0.57	2.89	2.99
0077	0082	2.34	26.69	421.77	2.87	0.77	3.64	3.60	2.14	22.84	315.41	2.82	0.58	3.41	3.36
0056	0061	5.01	76.91	302.70	2.59	0.48	3.08	3.12	4.67	74.18	292.84	2.40	0.39	2.79	2.83
0116	0124	6.65	53.38	412.74	2.96	1.06	4.02	4.55	6.29	47.77	406.54	3.46	1.49	4.96	5.61
0093	0099	5.95	51.21	381.42	2.82	1.10	3.92	3.86	5.88	46.72	378.65	2.84	0.93	3.78	3.71
0098	0106	8.15	69.34	280.23	2.88	0.38	3.26	3.24	7.44	65.41	281.86	2.97	0.43	3.41	3.38
0146	0155	9.72	60.52	248.07	1.27	0.61	1.89	1.92	9.68	60.95	245.40	1.43	0.42	1.85	1.88
0168	0182	6.16	61.55	234.61	1.30	0.20	1.51	1.57	6.08	60.12	227.28	1.23	0.20	1.43	1.49
0172	0184	7.90	31.53	302.31	5.02	1.78	6.81	7.10	7.30	29.92	314.39	5.25	1.91	7.17	7.48
0086	C087	2.90	14.02	377.86	4.34	2.93	7.27	7.15	2.65	13.12	368.35	4.41	3.24	7.65	7.51
0164	C179	3.43	12.17	251.62	3.23	0.63	3.87	4.14	2.52	11.45	243.48	3.15	0.57	3.73	3.99
0019	0020	7.78	45.99	205.90	1.56	0.20	1.77	1.63	7.64	45.79	199.04	1.50	0.16	1.67	1.54

4.3 ACCELERATION/DECELERATION SEQUENCE DATA, FEDERAL SHORT CYCLE DATA AND STEADY STATE IDLE DATA

The acceleration/deceleration bag sample data for individual vehicles as well as the calculated accel/decel data are included in this section. Also, results from the Federal Short Cycle and steady state idle tests are included. All data are presented in grams per mile except for idle which is presented on a grams per minute basis. Oxides of nitrogen are included but are not corrected for humidity. A complete time versus speed listing of the acceleration/deceleration sequence appears in the following pages.

The following is a description of the headings used in this section except for hydrocarbons, carbon monoxide, carbon dioxide, and oxides of nitrogen which are described in section 4.2.

HEADING	DESCRIPTION
ACCEL/DECEL	The acceleration/deceleration driving sequence results that are calculated from the sample bag collection technique.
ACCEL/DECEL CALCULATED	Calculated results of continuous sampling recorded during collection of the bag sample. Included in the calculation are the steady state results.
SHORT CYCLE	Results of the Federal Short Cycle test.
STEADY STATE IDLE	Calculated results of test vehicle emissions at idle condition.

		ACCEL/DECEL				ACCEL/DECEL CALCULATED				SHORT CYCLE				STEADY STATE-IDLE			
CAR#	RUN#	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX
0170	0446	2.81	38.1	635.7	5.94	1.52	30.1	587.8	5.74	1.91	44.3	692.7	2.04	0.79	26.5	130.5	0.07
0156	0427	3.58	26.5	588.6	8.94	2.30	25.1	556.3	5.62	5.83	49.9	620.1	4.07	0.94	18.5	117.4	0.07
0046	0189	2.55	28.0	532.2	7.89	2.35	26.0	511.0	7.95	2.10	29.0	536.3	3.82	0.47	8.6	125.4	0.12
0046	0206R	2.50	29.7	528.0	7.15	1.61	20.3	358.0	4.21	2.34	49.4	500.0	2.20	0.54	11.8	127.2	0.12
0112	0340	3.73	49.6	439.8	10.40	3.99	102.3	561.4	10.95	4.78	29.9	684.9	7.30	2.10	2.8	65.2	0.08
0081	0271	1.75	31.9	623.4	4.75	1.71	25.3	632.7	4.81	2.79	28.6	583.3	2.42	0.52	10.7	95.3	0.08
0111	0353	3.91	44.2	464.4	4.16	2.18	33.4	441.6	4.47	3.85	31.8	403.9	1.70	0.59	10.6	47.2	0.02
0065	0242	4.59	46.3	418.7	5.48	3.85	40.3	407.1	5.35	4.06	41.6	469.9	4.39	1.31	18.5	52.6	0.06
0124	0371	4.13	99.7	477.0	2.62	4.04	100.8	446.0	2.68	5.94	123.4	498.8	0.97	1.38	23.5	84.5	0.03
0151	0415	7.01	159.5	482.2	1.89	6.21	121.1	445.3	2.20	5.18	148.1	580.9	2.39	1.29	23.3	59.5	0.03
0076	0269	2.50	25.7	345.0	4.11	2.45	22.0	334.8	4.15	4.11	37.2	373.6	3.29	1.57	25.1	73.4	0.08
0095	0328	14.10	86.7	485.7	2.41	10.12	84.1	473.8	3.03	14.52	120.6	419.9	0.65	10.49	56.2	70.2	0.02
0069	0247	4.17	60.8	674.9	10.58	2.91	41.4	616.6	9.28	4.35	94.9	750.3	6.29	0.87	31.9	106.5	0.47
0131	0402	2.00	18.3	656.7	9.50	1.21	16.6	631.3	12.02	1.87	27.0	655.6	4.50	0.33	14.4	127.0	0.08
0092	0311	8.44	151.5	505.8	1.15	7.08	125.6	516.0	1.11	6.99	64.3	549.1	1.34	1.44	18.7	83.5	0.03
0169	0444	6.56	131.5	439.3	1.90	5.29	99.9	405.1	1.59	7.51	98.2	413.2	1.25	2.89	27.4	51.5	0.01
0001	0001	4.84	62.9	411.4	4.13	4.32	63.9	416.7	3.53	10.48	70.2	480.1	3.83	4.78	60.0	66.1	0.02
0041	0165	2.03	21.1	566.6	6.25	1.77	16.1	530.3	6.26	2.60	25.1	651.6	4.56	0.71	16.7	73.4	0.06
0049	0183	1.87	14.0	550.8	6.06	1.22	8.0	338.3	4.20	1.88	9.2	548.1	4.18	0.43	2.0	108.1	0.14
0048	0184	1.55	22.0	538.8	6.89	1.57	8.9	509.8	6.38	1.65	5.9	555.5	1.05	0.39	1.6	85.2	0.12
0099	0315	2.50	48.5	301.0	2.61	1.74	42.8	282.4	2.55	3.44	31.8	283.9	2.53	0.17	0.8	43.5	0.03
0125	0365	1.95	34.2	587.8	7.39	2.02	27.4	562.5	7.05	3.36	45.8	567.0	2.88	0.75	17.3	88.2	0.05
0013	0052	3.34	30.8	496.5	6.67	3.11	26.1	469.7	10.37	2.77	18.8	551.4	4.63	0.55	11.1	93.6	0.10
0062	0235	2.71	20.4	578.9	9.09	2.75	19.4	561.2	9.86	3.20	12.2	599.7	7.13	0.75	4.4	134.1	0.49
0167	0439	2.46	27.3	476.9	5.80	1.45	25.6	438.5	6.27	3.13	52.0	430.9	3.20	1.84	25.3	33.8	0.01
0168	0442	2.84	16.9	516.2	9.51	1.64	13.7	472.5	7.85	4.49	30.9	458.3	6.01	0.60	7.3	109.1	0.09
0005	0035	2.62	45.7	538.5	7.06	2.04	37.0	484.9	7.91	2.88	33.4	489.3	5.11	0.64	14.1	109.6	0.13
0003	0193	3.66	27.7	454.7	5.20	3.07	25.3	430.3	5.12	2.67	18.2	479.0	2.75	0.26	9.0	104.5	0.05
0060	0232	2.31	8.5	518.0	10.46	2.29	7.6	504.4	9.17	2.56	6.6	518.9	7.78	0.60	4.5	121.7	0.18
0007	0370	3.19	33.6	794.0	8.15	1.84	29.5	647.0	7.69	2.96	77.0	1134.8	8.98	0.89	28.1	183.3	0.34
0014	0112	1.96	14.4	466.3	5.13	1.64	11.6	454.1	5.13	2.39	11.5	563.3	2.24	0.35	8.6	66.5	0.05
0136	0383	4.32	83.9	332.5	4.56	4.30	99.1	301.8	4.55	12.31	184.6	256.5	1.29	1.81	42.7	44.8	0.02
0152	0420	2.01	47.5	504.4	4.53	2.36	44.4	462.5	5.20	4.35	55.4	545.7	2.26	0.60	10.7	76.3	0.13
0152	0429R	3.54	43.4	488.7	4.34	2.11	34.7	466.2	4.38	3.13	53.2	510.1	1.98	0.63	13.4	75.2	0.06
0016	0126	1.00	6.6	642.5	1.53	0.70	4.8	404.1	1.55	1.31	8.9	623.9	2.77	0.38	6.5	101.1	0.13
0039	0159	3.64	31.9	414.4	4.31	2.29	19.9	283.4	2.70	4.56	45.4	561.1	3.64	1.14	9.3	115.4	0.43
0083	0274	1.97	15.3	609.3	2.27	1.90	16.0	544.2	9.46	2.26	35.2	404.2	1.63	0.40	15.0	86.0	0.08
0097	0377	1.86	13.2	543.8	5.96	1.18	11.5	519.8	6.08	1.95	18.4	545.1	2.92	0.20	10.0	105.0	0.04
0021	0132	5.94	111.2	455.0	2.00	5.45	107.0	466.6	2.02	5.81	91.8	447.8	1.13	0.89	17.8	70.9	0.05
0024	0134	4.94	28.1	378.1	6.19	3.91	25.0	403.8	6.53	4.13	34.2	303.6	2.69	1.74	10.7	66.8	0.03
0061	0236	2.20	35.6	571.0	5.82	1.48	23.5	371.7	3.64	2.72	40.1	560.1	4.10	0.44	15.6	91.0	0.04
0109	0338	3.32	19.9	535.7	6.74	3.49	17.3	500.8	7.14	4.46	8.3	476.6	4.30	0.76	2.1	86.6	0.05
0025	0139	6.68	52.4	491.5	6.50	1.98	22.2	343.4	5.38	6.97	27.0	470.6	5.18	1.47	1.2	59.4	0.05
0070	0245	8.37	69.0	348.9	2.57	6.86	64.1	304.6	2.37	7.40	92.9	407.5	1.37	3.50	34.2	39.5	0.03
0091	0284	10.48	77.1	487.3	2.64	9.60	82.1	472.5	2.55	10.77	137.0	635.1	1.19	4.43	33.8	88.1	0.03
0089	0286	7.26	60.1	424.5	5.50	5.84	54.8	405.0	5.42	8.44	81.5	533.4	2.24	2.02	21.2	43.7	0.13
0031	0145	5.01	71.7	335.1	3.64	1.40	41.0	213.6	2.28	5.88	74.3	317.2	2.64	1.09	13.3	27.0	0.08
0055	0224	4.29	41.4	396.6	5.18	2.42	23.8	240.6	3.26	4.31	25.3	347.9	3.14	0.75	10.0	64.0	0.10
0080	0270	4.77	47.6	376.1	4.74	4.21	45.9	342.6	5.00	5.00	45.9	317.4	3.17	1.18	18.4	57.8	0.06
0132	0378	1.62	26.9	361.7	4.60	1.43	23.9	338.3	4.86	3.18	36.7	375.1	2.81	0.59	13.6	68.1	0.05

		ACCEL/DECEL				ACCEL/DECEL CALCULATED				SHORT CYCLE				STEADY STATE-IDLE			
CAR#	RUN#	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX
0085	0275	4.98	76.7	559.8	2.35	4.43	66.0	271.9	2.29	5.08	77.2	362.7	2.35	1.16	16.2	60.3	0.49
0087	0277	4.24	33.1	365.9	6.02	3.14	26.2	337.4	5.78	3.45	24.3	312.0	3.83	0.73	5.9	47.3	0.29
0108	0333	6.08	39.5	470.6	6.37	4.90	29.5	440.6	7.79	6.79	41.4	401.8	4.03	1.21	18.3	52.7	0.02
0050	0188	7.60	48.1	456.8	1.94	7.30	42.2	433.7	3.56	9.25	46.9	420.9	4.62	2.31	18.5	28.3	0.02
0100	0382	4.29	62.3	431.4	3.76	3.99	58.3	403.2	4.39	7.27	80.4	419.3	1.98	3.06	26.4	41.9	0.03
0100	0387R	4.88	72.5	458.3	3.87	3.92	68.1	416.4	4.44	4.06	70.1	391.2	2.28	1.13	26.1	47.0	0.02
0162	0434	14.51	53.6	499.2	6.20	9.79	49.4	454.5	7.64	15.46	54.0	392.1	4.19	3.57	17.9	42.4	0.02
0154	0425	5.28	66.5	507.8	3.64	3.42	65.2	481.3	1.62	5.16	80.4	438.5	1.49	0.72	15.4	68.9	0.03
0064	0237	4.02	42.9	354.1	2.84	3.79	38.5	339.8	1.83	3.41	30.3	360.0	1.98	1.10	13.1	61.1	0.07
0140	0394	15.55	64.7	464.3	3.09	12.90	52.0	420.3	3.53	15.95	45.1	381.0	1.92	2.26	0.5	49.4	0.05
0020	0131	6.15	101.2	417.6	1.73	5.21	77.8	425.6	1.60	4.82	44.6	373.8	1.26	1.91	33.0	56.9	0.02
0174	0465	9.95	87.4	365.9	2.81	7.68	69.9	360.3	3.13	11.35	110.8	288.7	1.10	6.12	26.0	29.6	0.01
0006	0036	16.00	70.3	457.2	3.52	8.24	51.9	429.5	3.30	14.34	22.2	451.3	2.83	4.46	1.0	97.1	0.08
0164	0450	1.85	23.8	708.3	5.78	1.93	22.4	687.2	6.99	2.40	18.8	759.3	3.20	0.48	1.8	163.1	0.07
0037	0153	3.47	55.8	662.1	8.59	2.11	25.5	410.5	5.52	3.81	56.0	639.1	7.79	0.89	26.6	136.4	0.84
0127	0366	2.34	46.7	392.4	4.45	2.45	43.2	380.6	4.82	4.15	53.3	362.9	2.43	0.76	20.2	57.9	0.01
0130	0373	0.77	10.0	193.5	1.90	0.76	7.7	191.1	2.18	1.46	5.8	213.6	1.34	0.21	4.6	64.6	0.03
0072	0250	4.38	63.8	619.9	5.29	2.87	57.9	570.5	5.47	3.03	86.4	42.0	2.76	1.43	41.6	81.9	0.05
0117	0348	1.90	21.7	414.1	7.47	1.47	19.6	409.1	8.00	2.00	25.5	365.3	4.01	0.52	12.1	70.4	0.27
0135	0379	1.62	17.1	392.6	7.48	0.77	13.2	364.0	8.04	1.74	15.1	447.7	7.36	0.38	9.1	55.0	0.03
0088	0281	3.80	31.5	562.8	7.45	2.47	21.6	348.6	5.17	2.03	15.4	408.7	2.26	0.28	1.3	140.9	0.16
0086	0276	4.22	25.9	583.2	9.15	2.51	16.6	392.0	4.14	3.46	21.0	514.6	4.54	0.76	12.2	64.6	0.05
0026	0138	4.38	32.2	365.1	4.95	2.35	19.6	253.4	3.23	4.15	40.1	418.8	4.23	0.82	16.7	51.2	0.03
0176	0475	5.12	74.4	232.8	1.25	4.57	97.4	237.1	1.22	13.19	87.9	241.3	0.60	2.59	25.2	29.5	0.01
0033	0146	2.48	29.0	300.5	6.36	1.71	15.5	188.2	4.33	2.97	38.1	218.7	3.13	0.85	14.1	27.0	0.15
0068	0246	2.32	26.1	596.3	7.63	2.16	27.9	491.5	6.85	1.67	45.8	710.3	4.87	0.75	11.8	89.0	0.09
0067	0251	1.53	19.0	298.7	5.83	1.15	18.9	285.0	6.03	1.84	22.6	244.9	3.44	0.37	11.2	37.5	0.04
0071	0254	2.44	35.7	281.1	4.39	1.37	20.9	180.3	2.66	2.19	41.1	312.0	3.48	0.49	14.7	37.4	0.04
0133	0376	1.18	13.1	250.5	3.60	0.94	10.2	259.6	4.01	1.80	14.6	252.1	2.36	0.13	1.5	41.0	0.02
0133	0381R	1.18	13.7	267.9	3.87	0.98	9.7	259.9	3.99	1.55	14.5	279.8	1.96	0.07	1.1	35.4	0.02
0004	0032	1.98	23.1	414.7	8.45	1.88	14.6	378.8	8.17	2.39	21.8	403.4	4.83	0.47	17.6	43.0	0.04
0015	0078	3.24	16.9	579.4	9.12	3.05	14.4	549.3	8.26	6.16	18.5	627.4	6.93	0.36	0.6	119.3	0.22
0023	0136	3.23	32.4	510.1	7.42	3.29	28.5	488.2	8.28	3.05	38.7	576.3	3.64	0.80	28.6	76.0	0.03
0134	0380	1.10	3.0	79.3	1.14	0.91	43.5	301.7	2.59	2.12	12.6	520.9	5.12	0.40	13.4	63.5	0.05
0134	0390R	1.63	13.8	430.5	5.99	1.59	10.1	396.1	6.06	2.59	16.5	389.4	3.77	0.41	12.7	70.9	0.05
0146	0405	2.83	7.4	521.4	6.51	2.52	7.7	510.5	7.59	2.43	8.8	597.7	1.86	0.42	1.1	129.8	0.07
0010	0042	6.63	72.2	509.2	4.82	3.36	47.5	333.7	1.93	4.86	52.9	549.3	3.41	1.23	36.4	66.2	0.03
0012	0051	3.41	14.8	450.1	7.86	3.16	12.2	457.0	9.41	4.01	16.1	485.5	4.52	0.55	10.1	87.9	0.06
0139	0391	3.41	25.8	490.4	9.89	2.57	22.2	505.8	8.07	4.90	47.7	461.1	4.72	1.00	21.0	88.6	0.05
0009	0039	2.79	37.6	231.9	5.68	2.74	31.7	395.0	6.18	3.62	14.6	390.3	4.38	0.19	2.8	119.6	0.05
0040	0166	3.70	17.2	487.2	3.67	3.88	15.0	466.8	3.51	4.62	24.0	409.1	1.98	2.14	25.5	37.4	0.04
0093	0313	2.24	18.2	478.1	4.02	1.97	13.8	465.5	3.01	4.47	37.0	612.5	1.69	0.71	13.7	59.7	0.04
0114	0343	2.23	19.4	529.6	4.01	1.93	18.1	354.8	4.56	2.71	24.2	373.8	2.95	0.21	4.5	57.2	0.03
0115	0350	3.50	75.3	492.9	4.98	4.03	72.0	455.6	5.47	6.81	102.0	466.1	1.59	3.10	43.3	54.6	0.01
0017	0129	3.43	137.5	671.5	0.97	1.55	90.1	504.6	0.93	2.10	77.1	692.2	0.76	0.54	16.4	90.5	0.05
0063	0238	2.79	36.0	492.6	6.46	2.95	37.8	458.6	6.33	3.01	69.7	480.8	2.40	0.90	29.5	91.8	0.18
0075	0253	35.77	35.9	407.0	3.48	35.88	27.6	339.0	3.93	25.72	13.5	462.7	3.76	6.92	2.1	80.0	0.07
0137	0388	15.27	49.1	628.5	1.29	13.82	44.5	603.1	2.80	18.51	37.7	723.9	4.49	4.61	29.2	97.6	0.09
0144	0406	3.44	35.5	554.3	5.63	1.94	27.2	502.2	5.22	3.61	38.8	508.2	2.56	0.24	7.5	124.5	0.06
0030	0143	9.10	80.0	428.7	4.80	7.67	60.5	371.8	5.75	7.23	58.7	410.2	0.92	0.91	12.0	59.3	0.01

CAR#	RUN#	ACCEL/DECEL HC	ACCEL/DECEL CO	ACCEL/DECEL CO2	ACCEL/DECEL NOX	ACCEL/DECEL CALCULATED HC	ACCEL/DECEL CALCULATED CO	ACCEL/DECEL CALCULATED CO2	ACCEL/DECEL CALCULATED NOX	SHORT CYCLE HC	SHORT CYCLE CO	SHORT CYCLE CO2	SHORT CYCLE NOX	STEADY STATE-IDLE HC	STEADY STATE-IDLE CO	STEADY STATE-IDLE CO2	STEADY STATE-IDLE NOX
0066	0243	6.02	49.3	452.1	6.90	5.39	38.1	428.3	7.06	5.51	57.8	429.6	3.24	1.05	10.6	85.3	0.10
0145	0404	12.81	52.3	375.3	4.55	11.57	49.5	372.8	5.19	15.25	79.3	316.9	1.88	1.73	26.7	49.4	0.04
0153	0418	3.23	37.7	468.4	4.98	2.24	32.8	433.0	6.52	3.24	40.2	350.9	2.38	0.57	11.2	93.2	0.06
0110	0344	5.27	40.6	420.9	4.39	3.85	30.6	388.4	4.68	6.17	52.0	423.9	2.18	1.18	16.5	36.7	0.01
0113	0346	4.44	41.9	466.8	7.16	4.04	38.0	459.9	7.68	8.28	59.8	356.2	3.60	2.13	27.9	44.6	0.02
0110	0356R	3.24	31.9	416.2	5.13	2.62	24.8	395.3	5.36	3.61	35.6	458.3	1.42	1.13	14.6	42.7	0.07
0044	0173	6.99	130.1	428.7	1.66	6.60	115.5	429.2	1.79	8.13	147.7	411.1	1.27	3.04	107.3	67.1	0.01
0047	0174	38.85	91.9	378.8	4.51	32.42	66.7	245.7	3.66	42.90	137.2	375.5	3.40	14.50	95.9	35.3	0.15
0106	0335	2.26	30.1	310.6	3.46	2.75	32.4	399.4	4.99	3.72	44.9	670.8	6.24	0.75	6.2	132.5	0.06
0143	0398	8.00	191.9	363.0	0.43	4.37	142.0	335.6	0.52	5.39	79.3	328.3	0.48	0.78	9.2	49.8	0.04
0058	0223	5.51	137.1	456.0	1.60	3.27	67.9	306.0	1.21	7.68	85.9	426.7	0.97	0.85	15.2	78.9	0.05
0058	0229R	5.32	123.8	463.1	1.86	4.72	97.2	451.1	1.80	5.19	103.2	415.7	1.17	0.82	15.3	76.9	0.04
0090	0282	8.23	79.4	503.9	5.25	4.86	50.3	329.0	2.52	7.10	104.0	421.4	2.59	2.66	45.0	76.5	0.13
0096	0312	6.27	76.5	385.7	2.40	6.59	72.1	393.0	3.30	9.67	123.8	444.3	1.69	2.37	28.2	54.7	0.03
0178	0473	3.83	57.8	109.5	2.53	2.32	46.8	277.9	3.47	4.15	26.9	303.8	2.10	0.79	8.6	47.4	0.01
0002	0233	5.92	88.0	358.3	3.68	4.48	70.1	353.0	3.77	5.71	63.8	348.6	3.16	0.68	10.9	57.7	0.04
0181	0479	6.01	68.1	428.3	4.16	3.40	58.2	417.1	2.61	6.97	72.1	343.7	2.55	0.85	21.4	46.0	0.02
0161	0437	2.42	34.8	634.9	6.25	1.50	31.5	595.7	6.46	2.79	34.6	590.4	5.10	0.44	0.5	90.8	0.15
0038	0158	2.71	7.8	576.3	9.57	1.36	3.8	382.3	5.29	1.90	7.2	651.8	7.26	0.36	0.6	118.7	0.21
0056	0217	3.18	21.6	523.1	8.18	2.83	18.1	503.7	7.20	3.21	45.5	450.5	3.85	0.76	15.2	96.2	0.21
0119	0352	7.23	115.3	400.4	2.25	6.41	119.7	379.3	2.39	9.74	101.9	397.2	1.91	3.70	35.2	75.2	0.03
0082	0273	2.00	19.7	644.9	6.97	1.93	17.7	615.0	5.83	1.74	17.9	488.3	1.29	0.57	8.1	111.0	0.07
0078	0256	6.92	71.3	523.4	5.94	6.36	68.5	527.2	4.39	7.44	101.6	505.3	3.13	1.37	34.4	75.9	0.06
0094	0325	3.58	18.7	456.5	4.64	3.54	15.7	380.3	5.35	3.22	18.9	302.8	2.95	0.80	2.7	47.3	0.14
0182	0477	1.80	17.6	655.7	5.82	1.03	18.3	650.2	6.12	2.30	19.4	671.8	3.07	0.10	0.9	154.4	0.09
0104	0316	4.05	27.5	546.6	5.09	3.42	22.2	536.1	5.75	7.06	31.4	517.8	2.36	0.73	16.2	96.5	0.06
0104	0322R	4.13	26.9	557.1	5.78	3.43	22.2	558.3	6.25	6.14	30.8	567.6	2.63	0.77	17.8	93.5	0.05
0022	0135	3.07	38.8	568.6	5.88	2.89	33.7	492.1	3.24	3.44	43.8	520.2	3.46	0.47	11.7	105.9	0.06
0148	0410	2.44	49.7	475.2	4.43	2.07	38.3	434.5	2.71	1.61	6.3	386.9	2.20	0.09	0.3	125.7	0.17
0077	0255	6.08	58.1	419.2	3.67	5.35	49.2	397.6	2.66	6.20	83.1	451.2	2.11	2.06	26.5	55.3	0.03
0054	0211	5.76	56.6	544.5	7.67	3.46	30.9	349.9	5.64	6.02	49.4	488.2	6.49	1.68	20.3	67.1	0.05
0173	0463	7.88	93.3	445.2	4.29	6.08	92.5	437.0	4.99	8.65	111.7	428.1	2.63	2.59	32.3	64.5	0.04
0101	0321	2.05	12.9	130.0	1.63	1.31	11.2	139.7	2.09	1.51	11.0	99.6	1.90	0.50	3.6	28.0	0.01
0166	0456	6.69	97.2	276.7	0.93	4.41	95.4	274.4	1.27	6.24	90.4	335.6	1.06	1.91	28.5	49.2	0.02
0183	0478	4.56	32.2	461.0	5.89	3.21	26.4	418.7	3.48	4.19	23.7	383.8	3.95	1.22	9.2	62.0	0.03
0179	0482	6.75	45.3	578.5	6.29	4.41	42.2	570.6	4.44	7.02	31.2	483.8	3.86	2.34	23.4	44.4	0.01
0159	0433	4.06	30.5	483.7	6.40	2.76	26.0	474.7	6.62	6.69	44.1	507.4	3.95	1.39	13.9	79.2	0.04
0126	0374	12.96	20.9	323.4	2.95	7.62	17.0	476.6	6.88	1.80	30.9	362.2	1.13	0.66	15.9	81.6	0.02
0128	0367	1.97	39.8	586.4	7.22	2.39	28.9	480.0	6.66	2.27	31.5	415.3	3.82	0.60	17.7	81.7	0.02
0129	0369	3.54	24.2	547.5	12.11	3.14	21.4	516.1	14.20	3.44	37.6	475.5	8.40	0.97	21.4	69.6	0.01
0036	0148	3.08	19.7	519.8	9.48	2.01	11.5	340.1	5.87	3.13	17.0	357.4	4.05	0.46	7.1	96.4	0.08
0043	0170	1.84	18.7	419.3	5.41	1.68	13.3	415.9	5.19	1.67	12.5	453.2	3.22	0.26	1.1	101.4	0.51
0158	0431	4.55	61.4	488.7	5.30	3.15	37.5	357.2	4.91	9.90	91.2	439.5	2.18	0.54	16.7	97.9	0.05
0107	0334	4.81	31.7	498.7	7.56	4.13	29.8	509.3	10.74	3.16	17.6	501.0	4.72	0.31	0.3	81.4	0.07
0079	0261	5.57	33.1	477.6	4.57	5.11	26.9	423.7	4.43	5.03	65.8	356.7	1.71	1.60	28.7	49.5	0.03
0138	0393	1.18	44.7	406.8	4.18	1.53	41.9	393.6	4.67	2.99	46.5	400.5	3.14	0.80	19.6	85.9	0.05
0118	0355	2.03	28.2	552.8	7.10	1.99	25.9	527.0	7.51	3.25	50.3	523.5	1.91	1.00	22.6	74.6	0.02
0027	0137	4.20	58.1	502.3	5.08	2.46	40.2	339.6	3.97	4.90	62.6	521.9	1.73	0.85	26.5	109.2	0.03
0029	0142	4.97	40.8	565.1	8.32	3.57	35.7	494.7	4.35	4.03	52.2	518.7	4.66	1.08	30.0	84.8	0.04
0147	0409	2.95	23.9	444.1	3.90	1.84	20.0	399.4	3.83	2.10	16.6	475.1	1.63	0.54	13.9	74.7	0.03

CAR#	RUN#	ACCEL/DECEL HC	ACCEL/DECEL CO	ACCEL/DECEL CO2	ACCEL/DECEL NOX	CALCULATED HC	CALCULATED CO	CALCULATED CO2	CALCULATED NOX	SHORT CYCLE HC	SHORT CYCLE CO	SHORT CYCLE CO2	SHORT CYCLE NOX	STEADY STATE-IDLE HC	STEADY STATE-IDLE CO	STEADY STATE-IDLE CO2	STEADY STATE-IDLE NOX
0018	0130	4.07	62.5	574.6	5.00	3.80	48.1	513.3	4.16	3.78	27.3	561.1	4.25	1.00	6.7	102.7	0.10
0028	0144	1.67	27.3	516.6	6.50	2.12	34.9	509.9	7.34	2.44	27.9	307.8	4.68	0.66	21.6	87.0	0.03
0084	0272	4.04	46.5	611.0	5.59	3.43	35.3	659.7	6.55	5.43	38.9	564.4	4.33	1.56	29.9	67.5	0.02
0150	0413	5.44	36.6	487.2	7.44	3.37	32.2	528.8	9.68	8.33	45.5	425.6	3.87	2.22	16.7	64.3	0.03
0034	0149	4.79	76.1	469.2	4.59	1.31	30.7	312.5	2.60	4.62	23.5	487.9	4.03	1.28	14.8	118.2	0.35
0155	0428	5.60	85.6	483.7	3.25	4.24	79.5	435.7	4.02	5.02	61.5	458.1	3.32	2.14	29.1	54.6	0.03
0103	0319	5.76	90.5	351.1	1.72	4.90	67.0	347.8	2.57	3.87	31.6	265.4	2.84	0.91	10.4	33.9	0.07
0123	0361	1.66	47.9	534.8	7.22	2.37	39.6	471.8	7.99	5.69	36.2	442.2	5.10	1.51	15.3	38.8	0.03
0171	0460	8.25	194.9	467.0	1.57	7.18	124.5	433.2	1.34	13.39	91.3	444.3	1.84	3.68	30.8	58.6	0.02
0180	0480	7.55	49.2	315.6	3.52	4.83	45.3	297.8	3.83	10.63	74.9	292.1	1.66	4.72	21.6	29.2	0.01
0177	0476	3.52	31.8	452.9	4.93	2.43	30.0	462.9	5.92	3.12	34.7	432.6	2.04	1.19	22.6	85.6	0.05
0163	0435	2.58	13.2	576.8	7.43	1.57	9.4	551.3	6.10	2.92	11.1	672.7	4.72	0.29	0.4	112.3	0.06
0105	0331	3.22	30.0	461.0	5.78	2.95	26.4	449.7	7.20	3.54	26.9	384.6	2.76	0.36	9.9	94.1	0.05
0142	0397	3.00	29.3	431.6	1.61	1.60	99.5	391.2	3.10	1.83	31.5	377.9	3.98	1.28	16.9	49.7	0.05
0045	0194	25.82	141.4	205.6	0.55	17.41	85.2	170.7	0.42	22.61	125.3	257.7	0.45	4.13	24.3	52.1	0.03
0073	0264	3.12	22.3	402.5	4.63	2.79	22.6	345.0	4.54	3.00	16.6	340.5	1.86	1.20	15.6	51.9	0.04
0141	0396	3.26	109.1	345.1	2.25	2.35	80.6	325.0	2.57	2.39	54.2	342.9	2.96	0.23	14.5	46.9	0.02
0157	0424	5.54	87.6	301.7	1.67	3.13	87.5	302.7	1.85	5.28	85.6	325.1	1.55	0.79	22.3	50.0	0.04
0102	0314	2.16	25.2	405.2	4.70	1.57	20.2	347.0	3.48	2.22	11.0	321.2	0.46	0.31	6.3	84.4	0.11
0098	0329	2.63	33.0	272.1	2.85	2.54	28.1	275.9	3.19	4.10	56.1	272.3	0.89	0.52	8.0	44.2	0.03
0032	0154	2.76	21.0	256.1	3.92	1.01	8.6	199.1	2.60	2.55	12.7	263.0	2.20	0.52	2.5	42.7	0.14
0074	0252	6.57	14.5	326.5	4.56	7.36	12.1	316.5	4.77	16.24	9.1	335.0	3.74	5.91	4.3	43.3	0.14
0019	0133	3.85	33.1	253.4	3.33	2.31	27.1	261.0	3.20	3.53	33.7	300.2	2.22	0.43	13.3	36.5	0.03
0035	0147	4.06	54.7	277.9	5.05	2.95	50.6	262.2	4.75	6.33	76.9	260.5	3.21	1.79	20.9	29.7	0.01
0053	0212	6.46	65.4	218.8	2.80	4.95	62.5	221.7	2.96	9.05	87.9	198.6	0.94	3.24	26.8	29.8	0.01
0053	0216R	6.86	65.8	221.6	2.53	6.01	63.1	218.3	2.29	8.43	95.4	209.3	0.90	3.56	26.0	28.4	0.02
0160	0432	2.94	33.5	299.4	2.27	1.91	25.9	339.4	1.98	3.13	34.6	311.6	0.93	0.46	8.5	44.2	0.02
0120	0358	1.72	33.1	231.7	2.46	1.50	27.8	237.4	2.57	3.14	29.3	253.2	1.33	0.88	10.0	40.4	0.12
0149	0412	3.87	39.9	200.0	2.05	1.43	39.7	210.7	1.78	7.58	88.1	150.6	0.25	1.41	7.8	22.0	0.01
0052	0207	48.00	45.1	270.1	5.23	41.28	33.5	231.6	4.27	38.14	33.3	212.7	3.74	3.27	11.2	25.6	0.01
0052	0257R	6.31	64.7	315.1	5.67	5.68	51.2	213.8	5.52	3.53	27.3	345.4	3.93	2.16	1.3	32.6	0.07
0057	0228	6.94	35.4	221.5	3.24	5.88	32.7	222.1	3.83	9.26	58.2	180.3	1.37	5.08	15.9	15.1	0.01
0059	0234	2.93	71.8	221.0	1.72	2.40	56.7	213.3	1.57	1.41	34.0	234.3	1.35	0.34	7.9	37.8	0.03
0051	0197	2.09	15.7	325.0	8.05	1.35	8.2	210.8	5.80	2.38	15.7	312.3	6.30	0.29	3.7	28.9	0.05
0116	0347	8.76	55.6	174.9	2.10	7.14	46.2	169.8	1.17	11.68	65.3	155.0	0.48	2.74	15.2	22.0	0.01

CAR#	RUN#	ACCEL/DECEL HC	ACCEL/DECEL CO	ACCEL/DECEL CO2	ACCEL/DECEL NOX	ACCEL/DECEL CALCULATED HC	ACCEL/DECEL CALCULATED CO	ACCEL/DECEL CALCULATED CO2	ACCEL/DECEL CALCULATED NOX	SHORT CYCLE HC	SHORT CYCLE CO	SHORT CYCLE CO2	SHORT CYCLE NOX	STEADY STATE-IDLE HC	STEADY STATE-IDLE CO	STEADY STATE-IDLE CO2	STEADY STATE-IDLE NOX
0163	0173	5.80	153.7	490.4	1.97	4.88	129.2	415.5	2.87	3.85	75.6	172.7	1.86	0.83	11.2	89.3	0.11
0019	0019	3.07	82.0	454.1	1.17	2.09	79.4	427.6	1.54	4.82	60.4	339.1	0.93	1.48	22.6	49.1	0.09
0081	0081	3.67	85.9	545.7	3.50	3.34	78.0	325.9	4.58	2.10	26.7	583.5	3.13	0.46	6.0	62.3	0.08
0040	0040	5.51	147.4	310.4	0.50	5.36	131.2	192.8	0.63	7.26	153.8	327.9	0.33	1.30	24.8	55.6	0.01
0039	0039	3.16	45.5	319.7	1.72	4.92	48.7	389.9	2.44	5.45	85.9	356.4	1.41	1.02	18.5	71.0	0.10
0168	0179	16.46	233.7	360.9	1.12	12.86	216.3	343.6	1.24	18.31	190.0	288.9	0.61	2.22	30.0	59.7	0.03
0033	0083	5.89	86.4	399.2	2.86	5.13	94.3	223.4	3.56	6.98	101.2	309.6	1.65	1.53	16.6	34.4	0.09
0068	0068	7.64	117.7	409.0	3.16	6.75	109.0	214.4	3.69	6.24	72.3	291.4	1.49	0.98	14.0	48.4	0.03
0135	0137	8.86	113.9	460.3	2.74	7.61	114.3	262.6	2.80	12.54	122.7	380.2	1.47	4.18	34.7	43.5	0.04
0051	0051	3.50	246.7	666.3	1.19	3.19	206.8	555.2	1.73	1.80	116.4	612.5	0.80	0.54	24.4	138.8	0.10
0048	0048	7.75	313.2	553.6	3.11	5.71	240.2	534.2	5.02	3.26	49.9	524.5	3.54	0.54	0.7	109.1	0.10
0085	0085	5.28	170.7	579.7	2.01	4.95	154.2	285.6	2.84	3.22	54.4	510.9	2.96	0.53	9.6	104.6	0.15
0042	0042	7.35	161.3	456.1	2.54	6.24	139.2	269.2	3.61	6.14	67.0	439.5	4.55	0.89	12.3	91.7	0.08
0158	0166	5.51	105.3	510.0	5.31	5.78	110.1	494.1	3.52	5.32	73.0	406.5	3.45	2.35	37.0	59.3	0.07
0158	0167R	5.25	118.4	490.4	4.80	5.12	98.9	507.1	3.56	4.82	74.4	402.9	4.39	0.82	5.3	92.5	0.41
0061	0061	12.05	158.9	742.9	1.74	6.97	169.9	495.1	2.84	3.91	93.7	511.1	3.45	0.84	19.5	84.7	0.21
0114	0114	4.53	86.2	476.8	2.29	4.68	88.4	479.0	3.10	4.71	70.7	433.4	1.39	0.76	4.0	92.5	0.16
0140	0142	6.55	171.1	402.0	1.37	5.91	145.0	250.5	1.29	6.10	63.7	625.3	1.91	1.28	12.0	71.7	0.14
0145	0148	4.91	130.5	435.9	1.92	4.46	117.9	458.4	2.72	3.52	50.7	452.7	2.51	0.99	17.9	67.4	0.23
0155	0162	3.25	71.9	506.6	3.77	3.14	67.6	495.6	4.49	2.32	12.0	502.0	16.53	0.58	2.7	117.8	0.40
0005	0005	4.06	82.3	422.4	2.70	1.95	70.0	401.2	2.78	3.90	48.6	404.7	2.04	0.83	11.6	66.2	0.08
0017	0017	4.14	113.7	375.5	1.73	2.10	116.1	369.8	2.13	3.97	88.3	320.4	1.02	0.55	16.7	63.7	0.09
0130	0130	8.44	77.9	621.7	6.31	5.87	73.7	571.0	7.91	9.01	76.3	402.0	15.10	1.99	39.3	68.8	0.17
0130	0132	4.38	91.8	427.6	3.08	4.45	101.2	247.9	3.63	5.80	92.4	372.8	1.43	1.10	23.4	93.1	0.32
0010	0010	3.77	79.3	425.4	1.49	1.08	75.0	268.6	2.23	1.65	30.9	532.3	2.72	0.20	1.8	100.1	0.08
0012	0012	6.19	141.1	291.8	0.88	3.01	143.7	288.5	0.88	5.90	88.3	321.3	1.10	0.75	8.8	58.2	0.06
0027	0027	3.46	65.1	530.0	4.83	3.17	63.1	293.3	5.69	3.18	58.0	422.5	2.89	0.73	19.9	62.7	0.07
0138	0140	9.38	225.5	373.9	1.12	9.17	234.7	278.8	1.40	10.89	152.9	386.9	1.92	1.54	32.5	74.3	0.10
0139	0146R	9.32	238.2	374.4	2.95	9.12	227.2	402.7	3.96	8.11	91.1	338.8	2.43	1.62	26.5	82.9	0.16
0021	0021	8.17	155.1	356.7	1.34	2.97	150.4	213.0	2.12	8.44	81.3	270.6	1.75	1.49	18.7	36.9	0.02
0031	0031	7.35	179.6	472.2	2.27	6.24	163.2	231.4	2.46	7.43	143.4	295.2	0.65	1.30	19.6	53.8	0.09
0032	0032	6.36	99.7	324.7	1.78	5.71	98.3	316.1	2.19	6.08	72.7	338.7	1.84	0.85	16.7	58.2	0.09
0053	0053	4.15	66.0	453.2	3.30	4.07	77.0	265.3	3.67	4.27	74.4	359.8	1.75	0.95	19.7	64.3	0.17
0023	0023	6.58	109.0	423.4	2.12	3.00	124.1	360.0	2.39	6.71	106.2	334.0	0.84	1.13	16.3	58.4	0.04
0025	0025	5.82	118.3	412.7	1.36	2.42	116.0	406.9	1.63	5.35	101.8	353.8	1.13	0.76	6.1	68.5	0.11
0089	0089	8.48	135.8	397.2	1.80	7.37	131.4	231.3	2.29	9.45	116.0	316.4	0.92	1.24	15.1	42.1	0.07
0112	0112	9.75	187.1	434.5	1.97	8.64	186.4	412.4	2.38	9.06	156.1	315.7	0.80	2.19	37.3	44.2	0.06
0063	0063	5.79	118.8	368.7	2.94	4.85	95.3	226.3	4.15	4.02	37.0	324.8	3.36	0.67	7.2	45.9	0.16
0102	0102	3.92	71.5	323.5	2.28	3.48	85.5	217.7	2.85	2.84	68.4	352.5	2.10	0.39	5.7	43.0	0.11
0131	0133	11.09	97.9	430.4	4.38	8.71	94.4	418.9	3.85	11.40	85.9	334.3	2.56	2.05	20.4	56.4	0.51
0002	0002	5.69	35.4	390.3	3.83	2.16	36.8	386.5	4.66	5.25	13.3	416.8	4.43	0.78	1.7	61.0	0.09
0004	0004	5.62	110.7	369.9	1.89	7.37	107.3	234.0	2.12	3.72	36.8	348.2	1.88	0.51	3.6	45.7	0.09
0038	0038	5.78	102.4	223.9	0.82	4.88	93.0	141.9	1.31	5.72	107.9	246.0	1.58	1.31	13.8	53.2	0.08
0129	0131	8.65	130.5	432.0	1.47	8.05	141.1	276.0	1.64	5.51	84.7	426.5	0.69	0.76	7.2	120.4	0.09
0058	0058	7.01	116.0	415.6	2.36	6.23	103.2	240.8	3.08	6.00	88.1	319.1	1.30	1.10	14.2	39.9	0.08
0075	0075	9.10	138.0	440.1	2.78	7.78	122.5	252.4	3.57	8.63	83.3	353.7	1.91	1.55	4.4	52.5	0.05
0113	0113	4.97	98.8	359.9	2.63	3.96	93.4	363.6	4.23	6.38	50.8	392.9	4.06	0.64	1.4	43.9	0.17
0118	0118	7.00	103.3	408.6	2.98	8.25	108.8	240.2	3.79	8.16	92.6	358.7	2.53	1.25	5.9	73.9	0.32
0062	0062	7.47	121.5	250.1	0.72	6.53	126.6	152.6	0.82	7.23	85.8	189.1	0.45	1.70	19.5	31.8	0.06
0092	0092	6.27	31.9	335.3	5.61	6.28	26.9	331.9	7.12	8.93	18.4	352.6	4.90	5.69	4.1	43.5	0.36

CAR#	RUN#	ACCEL/DECEL HC	ACCEL/DECEL CO	ACCEL/DECEL CO2	ACCEL/DECEL NOX	ACCEL/DECEL CALCULATED HC	ACCEL/DECEL CALCULATED CO	ACCEL/DECEL CALCULATED CO2	ACCEL/DECEL CALCULATED NOX	SHORT CYCLE HC	SHORT CYCLE CO	SHORT CYCLE CO2	SHORT CYCLE NOX	STEADY STATE-IDLE HC	STEADY STATE-IDLE CO	STEADY STATE-IDLE CO2	STEADY STATE-IDLE NOX
0101	0101	6.43	113.3	414.9	11.94	6.00	112.9	409.6	6.92	6.53	82.4	312.5	1.69	0.99	14.9	42.9	0.11
0107	0107	8.13	109.4	419.5	3.15	7.35	119.3	405.6	3.96	8.55	128.6	307.5	1.02	1.83	14.2	47.8	0.09
0022	0022	4.53	72.7	444.1	2.25	2.25	71.7	398.9	2.78	4.80	34.2	390.1	1.47	1.48	1.4	75.1	0.11
0109	0109	3.62	47.6	411.7	5.14	3.13	43.3	240.8	7.23	4.55	14.2	351.5	6.44	0.79	5.4	67.0	0.58
0106	0106	5.57	97.9	304.8	1.64	4.83	97.6	299.1	2.26	5.18	58.5	239.2	1.98	0.49	1.6	29.7	0.35
0157	0164	25.40	124.5	316.5	0.96	22.69	116.6	300.3	1.16	18.80	112.5	323.4	0.74	2.94	8.3	46.6	0.05
0125	0126	35.69	163.4	390.1	1.79	35.33	154.8	251.3	2.98	35.03	147.7	312.7	0.92	8.75	38.6	38.2	0.05
0084	0084	10.99	126.6	338.6	1.86	8.91	124.3	197.8	2.14	11.27	94.6	225.3	0.84	4.67	20.9	30.1	0.05
0171	0184	5.74	56.6	493.9	5.11	5.41	58.6	470.1	5.88	6.41	90.2	405.9	1.99	1.18	12.5	58.1	0.07
0123	0124	14.01	191.1	310.7	1.27	11.29	186.2	188.6	1.46	20.66	162.5	240.3	0.49	4.22	42.0	39.9	0.08
0141	0143	5.33	151.7	550.1	2.32	5.06	150.7	311.7	1.97	4.10	134.8	496.6	1.63	0.74	36.4	104.3	0.28
0166	0176	7.69	189.2	452.9	2.03	7.26	182.5	444.3	2.86	10.38	170.0	357.5	1.25	1.96	31.5	82.1	0.30
0166	0178R	6.86	165.3	464.6	2.52	6.52	162.6	470.4	3.50	7.30	119.9	409.5	2.10	1.44	26.2	66.4	0.10
0055	0055	5.95	162.3	396.9	1.31	5.02	127.2	231.4	1.89	6.86	104.8	342.2	1.31	1.14	21.6	45.2	0.01
0069	0069	8.36	192.1	418.8	1.83	7.27	161.1	244.9	2.62	6.87	89.9	376.1	2.51	1.11	22.1	54.8	0.10
0167	0177	7.40	196.2	474.1	2.66	6.85	187.3	462.5	3.65	8.28	148.2	429.6	2.75	1.35	31.8	52.3	0.06
0167	0182R	7.86	221.1	450.0	2.06	6.95	192.3	443.7	3.32	5.67	98.4	428.1	3.60	0.91	23.9	68.7	0.10
0008	0008	2.99	92.4	320.1	3.19	1.47	101.3	192.0	3.56	4.22	93.0	260.1	1.63	0.60	17.1	31.4	0.02
0014	0014	4.21	98.1	336.1	1.69	1.98	110.7	347.1	2.21	4.50	95.4	337.8	1.22	0.55	15.3	66.4	0.10
0066	0066	7.62	208.9	386.7	1.35	6.93	195.8	371.0	1.64	6.83	143.8	338.7	1.02	1.11	22.2	72.4	0.10
0059	0059	7.74	187.8	423.1	1.70	7.13	172.4	418.3	2.67	7.19	133.6	364.2	1.42	1.21	19.5	68.0	0.45
0088	0088	7.19	154.7	353.5	1.26	6.85	167.6	222.6	1.78	6.48	407.6	293.8	0.89	0.80	17.0	69.7	0.08
0160	0169	7.48	187.3	284.4	1.26	6.42	222.9	278.6	1.24	10.12	223.4	202.3	0.27	1.45	33.0	37.7	0.05
0160	0172R	8.26	222.7	294.1	1.02	7.02	226.0	285.3	1.04	9.24	197.6	190.4	0.28	1.97	28.8	34.0	0.03
0086	0086	6.79	99.0	595.7	4.80	6.06	97.0	331.6	5.78	5.61	120.7	496.4	2.64	1.15	30.1	119.8	0.11
0095	0095	2.50	35.7	522.7	6.55	2.58	43.1	519.2	9.48	3.21	70.0	714.1	4.99	0.84	24.9	86.2	0.21
0152	0158	5.34	139.2	522.4	3.89	4.97	124.6	510.6	5.15	4.55	72.1	499.5	4.49	0.59	11.7	108.2	0.21
0172	0185	3.81	70.1	539.9	4.97	3.77	68.1	534.4	5.78	2.97	41.5	487.5	3.04	0.60	7.7	99.8	0.17
0007	0007	3.15	69.6	360.5	4.43	1.43	65.0	351.1	6.59	2.93	48.9	326.4	4.25	0.45	15.3	49.1	0.06
0064	0064	5.57	112.3	460.4	3.26	5.03	108.3	266.7	4.59	7.31	95.9	377.5	2.63	1.33	24.5	60.9	0.31
0071	0071	7.54	88.7	466.3	3.53	5.88	77.4	273.3	4.25	5.94	52.8	399.3	2.85	1.06	8.3	47.2	0.10
0122	0122	5.96	107.8	481.2	4.09	5.54	114.1	282.3	5.73	7.30	72.5	401.0	4.51	1.29	21.4	60.4	0.16
0122	0123R	6.01	116.1	476.4	4.23	5.21	90.3	480.8	4.42	5.83	51.7	403.7	5.19	1.00	9.3	76.3	0.17
0013	0013	3.27	35.3	409.2	5.18	1.45	36.8	228.0	5.85	3.21	40.4	377.1	3.41	0.56	11.8	67.8	0.01
0126	0128	5.68	39.1	440.2	5.07	4.82	38.8	325.1	5.78	4.79	21.9	439.1	3.18	0.39	1.2	75.1	0.20
0136	0138	6.35	83.3	513.6	5.23	5.56	85.0	305.0	6.01	6.60	98.8	447.2	2.56	0.86	12.3	52.8	0.06
0006	0006	6.36	119.5	502.9	3.49	2.54	116.6	491.1	5.29	5.90	103.9	527.1	3.13	2.16	35.2	51.5	0.05
0047	0047	4.68	89.7	495.3	3.71	4.63	90.6	279.5	4.23	5.89	104.1	455.6	2.39	0.66	3.4	81.5	0.16
0060	0060	9.97	215.2	404.5	1.87	7.76	164.4	245.4	2.87	7.51	113.0	293.5	0.93	1.88	29.4	43.3	0.14
0057	0057	7.23	222.0	408.9	1.10	7.00	204.4	229.2	1.29	7.25	155.4	331.8	0.65	1.08	24 3	70.7	0.07
0074	0074	11.72	150.8	372.6	1.32	8.45	133.7	248.7	1.98	11.11	142.7	309.9	0.74	1.35	23.0	54.1	0.05
0082	0082	9.92	130.7	355.3	6.44	8.41	129.3	349.3	3.82	10.81	121.6	292.5	1.11	1.69	13.9	63.1	0.05
0033	0033	3.93	70.0	354.1	3.01	4.35	71.6	200.3	4.00	4.90	62.3	252.5	1.80	0.71	12.4	62.0	0.11
0034	0034	10.59	91.9	292.6	1.22	7.81	87.4	175.8	1.61	8.90	88.9	249.1	0.72	0.80	6.0	50.1	0.08
0035	0035	7.76	224.2	433.8	0.91	7.78	203.5	229.1	1.04	7.62	186.2	325.8	0.49	0.98	13.1	63.1	0.07
0090	0090	6.67	190.8	332.2	0.85	6.57	195.3	251.7	0.93	7.80	172.8	326.0	0.38	0.94	19.6	68.2	0.07
0070	0070	7.04	111.0	350.3	2.48	5.76	113.3	206.4	3.47	8.80	99.8	240.1	1.62	1.26	21.0	38.6	0.11
0134	0136	9.09	93.5	332.2	1.99	7.26	97.3	196.0	2.84	9.06	94.0	312.8	1.84	1.81	30.8	53.3	0.05
0143	0145	8.17	160.2	383.9	1.05	6.89	142.3	379.1	2.12	7.83	160.7	330.2	0.78	1.46	26.6	35.4	0.09
0143	0152R	6.45	101.5	327.2	1.65	5.54	106.1	324.4	1.86	7.17	115.4	164.8	0.56	1.27	22.1	46.0	0.05

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES — DENVER — RESULTS IN GRAMS PER MILE —

		ACCEL/DECEL				ACCEL/DECEL CALCULATED				SHORT CYCLE				STEADY STATE-IDLE			
CAR#	RUN#	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX
0065	0065	5.56	88.4	348.8	1.83	4.06	71.6	211.8	2.91	6.02	69.6	293.2	1.78	0.94	13.6	42.9	0.13
0099	0099	7.94	147.3	455.7	2.38	6.94	155.6	262.9	2.88	12.59	207.4	527.7	1.76	1.17	24.5	53.8	0.09
0154	0161	6.23	71.7	416.6	4.31	5.69	77.8	398.3	4.64	6.69	67.6	359.1	3.33	0.80	19.5	52.9	0.14
0154	0165R	6.29	71.2	387.7	3.52	5.75	78.4	381.7	4.23	6.53	56.9	327.4	2.67	0.90	11.5	60.0	0.06
0045	0045	7.95	199.8	458.2	1.70	6.48	147.1	296.8	3.04	5.61	57.6	384.4	3.86	0.95	12.9	54.9	0.10
0094	0094	5.68	71.4	403.3	4.15	5.44	63.2	405.4	6.36	6.57	65.8	322.9	3.72	1.07	13.7	57.6	0.14
0150	0156	6.44	86.7	472.7	4.73	5.97	83.5	453.0	2.35	7.96	98.2	407.4	2.92	1.53	24.4	58.4	0.10
0159	0168	8.17	240.4	372.5	1.37	7.57	226.6	384.3	1.96	8.93	167.6	326.3	1.06	1.02	9.6	67.7	0.33
0149	0155	4.26	83.9	280.6	1.53	4.12	69.4	267.2	1.58	4.19	85.9	276.2	0.88	1.28	7.2	53.1	0.07
0087	0087	3.88	86.4	231.1	0.82	5.93	88.2	228.5	0.88	5.90	93.1	231.9	0.77	1.80	25.4	58.6	0.10
0165	0175	6.01	83.6	370.9	3.19	5.55	75.2	353.0	4.20	6.25	47.3	302.9	3.32	0.71	6.2	40.4	0.10
0104	0104	8.21	96.0	518.5	4.19	8.18	85.2	517.9	5.77	13.55	63.3	405.0	4.49	6.29	13.3	38.2	0.18
0093	0093	13.05	118.7	382.9	2.99	11.65	118.9	249.6	4.55	12.30	108.8	322.3	2.97	4.36	37.0	49.8	0.13
0078	0078	4.52	67.7	541.7	4.15	4.15	66.0	315.4	6.07	3.13	23.0	513.4	4.39	0.61	4.0	95.2	0.23
0091	0091	5.91	56.8	503.5	6.83	5.72	73.6	452.0	7.19	6.69	93.0	367.4	2.63	1.16	20.3	55.8	0.20
0026	0026	4.12	69.4	394.2	1.89	1.44	62.8	227.2	2.34	2.72	26.5	407.7	2.08	0.35	9.7	77.5	0.09
0041	0041	6.71	117.2	324.7	1.55	4.58	103.8	313.7	2.32	7.03	72.8	184.1	0.70	0.91	11.5	48.9	0.10
0128	0181	7.28	117.8	449.9	2.65	6.85	148.2	347.0	2.74	9.70	147.0	280.4	1.67	2.45	45.0	46.9	0.04
0098	0098	12.12	235.6	432.7	2.21	10.66	231.6	244.4	2.86	19.75	294.8	328.6	1.10	3.13	76.3	61.2	0.09
0169	0180	6.14	121.3	450.4	1.66	5.11	108.0	460.7	2.26	4.78	66.3	445.5	2.16	1.03	20.3	71.9	0.05
0016	0016	3.39	180.0	471.3	2.07	1.63	145.0	458.3	2.97	4.03	122.8	434.4	1.95	0.61	24.2	86.3	0.05
0009	0009	3.61	164.5	484.9	2.68	2.20	161.0	269.2	1.38	3.61	125.1	359.7	0.74	0.80	34.9	86.3	0.06
0137	0139	4.79	94.3	442.9	2.49	4.56	98.6	253.8	2.91	3.57	65.6	448.8	1.92	0.80	3.3	116.8	0.29
0096	0096	6.04	111.5	464.3	1.94	5.36	111.7	272.2	2.58	5.64	77.5	412.0	1.79	0.75	13.7	62.7	0.08
0029	0029	8.94	137.2	508.7	3.02	6.76	153.7	248.5	3.66	9.39	106.9	379.3	2.06	1.63	18.6	41.4	0.04
0054	0054	8.68	135.9	438.8	2.06	6.53	141.4	255.8	2.54	8.96	130.1	323.6	0.80	2.15	26.0	50.7	0.04
0108	0108	8.62	157.1	362.2	1.12	8.08	178.8	228.5	1.47	7.29	113.0	317.3	0.70	1.36	11.5	64.7	0.08
0170	0183	11.78	273.4	378.4	0.88	10.34	264.4	374.3	1.16	11.16	181.3	345.2	0.76	2.30	26.9	39.4	0.03
0077	0077	10.78	159.4	330.1	1.13	8.30	144.3	202.6	1.88	11.86	109.4	287.5	1.29	2.81	28.6	59.3	0.22
0161	0170	3.49	111.0	336.2	2.65	3.08	99.8	339.0	4.08	2.83	66.4	301.1	2.32	0.39	4.7	57.6	0.19
0116	0116	21.33	138.8	393.9	1.77	16.51	125.7	223.8	2.18	14.73	117.9	369.6	1.04	3.48	8.2	86.3	0.12
0015	0015	3.82	36.2	482.1	5.04	1.51	38.9	256.9	6.33	4.34	29.8	368.3	2.80	0.53	0.8	60.7	0.07
0153	0160	8.23	183.2	429.9	1.11	8.10	169.0	417.2	1.20	10.83	155.3	457.4	0.76	4.57	19.1	105.0	0.07
0046	0046	7.39	131.4	412.5	2.19	6.59	129.7	388.8	2.40	12.78	276.2	517.5	1.62	1.71	22.3	61.0	0.07
0151	0157	9.37	143.0	451.3	3.29	7.73	112.4	449.6	4.98	9.22	77.5	313.8	3.53	1.88	21.1	88.1	0.23
0151	0159R	7.01	124.4	459.1	2.17	6.35	117.2	457.4	2.97	9.32	103.6	417.4	1.57	1.67	26.5	85.8	0.10
0144	0147	10.77	235.1	332.9	0.65	9.58	244.2	194.3	0.65	12.46	210.1	283.0	0.36	1.33	28.6	46.1	0.04
0144	0149R	9.50	271.8	355.3	0.58	8.08	268.1	352.5	0.69	3.81	166.6	246.3	0.33	1.38	28.8	55.0	0.06
0056	0056	6.74	145.2	386.1	1.81	5.45	130.5	385.4	2.73	8.63	100.2	337.4	2.39	1.83	32.9	55.2	0.10
0115	0115	4.94	103.0	253.6	1.37	4.10	90.8	252.2	2.34	3.93	57.4	214.0	1.15	1.06	4.8	32.2	0.10
0139	0141	16.24	192.4	308.7	0.69	15.32	203.3	295.0	0.68	28.87	197.7	243.8	0.24	10.50	30.7	46.1	0.03
0173	0186	6.08	109.1	432.6	4.88	6.60	99.7	437.0	7.14	4.55	59.4	304.3	3.34	8.27	13.5	50.8	0.12
0132	0134	4.59	116.7	536.4	4.36	4.26	110.1	461.1	4.16	6.40	141.2	491.1	2.02	1.54	41.0	76.2	0.12
0011	0011	5.33	85.3	449.2	3.50	2.22	86.2	264.3	4.29	4.72	42.8	383.2	4.07	1.02	8.4	70.0	0.07
0162	0171	4.64	111.6	509.3	3.44	4.48	120.0	502.7	4.25	5.35	95.0	503.2	3.13	1.33	10.1	94.6	0.12
0003	0003	5.09	34.1	535.1	6.22	1.78	32.7	459.1	6.17	4.31	21.5	656.2	5.83	1.39	11.9	74.5	0.03
0018	0018	6.27	84.2	520.0	2.34	1.18	63.6	296.2	3.80	2.99	27.6	449.9	1.70	0.30	4.0	69.9	0.09
0028	0028	5.21	120.5	408.5	3.26	4.95	119.0	246.0	4.27	6.14	75.7	348.1	3.64	1.09	21.4	70.3	0.18
0037	0037	15.11	107.9	442.8	2.21	12.52	101.4	251.5	3.55	5.06	65.6	416.7	3.03	1.90	20.0	83.3	0.17
0124	0125	6.03	157.6	360.8	2.45	5.00	135.7	231.5	3.91	5.18	55.2	382.8	3.94	1.27	20.4	51.6	0.11

		ACCEL/DECEL				ACCEL/DECEL CALCULATED				SHORT CYCLE				STEADY STATE-IDLE			
CAR#	RUN#	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX
0067	0067	7.04	158.7	444.4	1.95	6.66	167.2	428.3	2.16	5.06	98.3	388.8	1.21	1.02	12.2	78.9	0.09
0156	0163	7.56	122.8	427.3	4.70	6.35	110.2	416.2	4.62	6.81	57.4	369.8	5.03	1.34	15.8	59.6	0.44
0120	0120	11.81	231.5	235.2	0.30	10.41	213.4	265.4	0.45	13.52	170.3	254.0	0.33	2.77	21.6	52.9	0.03
0072	0072	9.46	170.5	343.1	1.45	8.01	162.8	218.8	1.97	9.28	82.7	328.9	1.66	1.27	13.9	53.5	0.05
0079	0079	6.73	132.6	416.2	2.03	6.56	139.4	251.5	2.57	8.08	120.5	332.0	1.17	1.87	22.2	47.4	0.05
0001	0001	0.21	198.4	527.4	2.63	4.30	144.5	431.9	3.41	8.23	161.1	381.3	1.69	1.80	49.4	82.1	0.05
0105	0105	3.74	76.1	348.5	2.37	3.40	78.4	233.2	3.49	4.98	80.3	279.8	1.19	0.52	13.4	59.3	0.12
0148	0154	5.27	106.4	292.5	1.88	4.41	104.0	313.2	1.63	4.18	62.0	288.4	2.44	0.63	12.5	42.6	0.13
0133	0135	7.12	141.7	344.8	2.87	6.66	155.9	197.2	1.50	8.52	142.0	299.7	0.77	1.67	39.6	67.4	0.11
0121	0121	7.05	98.8	318.2	2.33	6.09	100.1	208.0	3.41	7.76	85.2	258.8	1.80	1.39	13.0	21.9	0.12
0052	0052	15.71	107.9	303.8	1.56	11.11	122.8	275.9	1.35	20.75	147.4	208.6	0.35	4.07	26.9	33.1	0.05
0044	0044	7.20	175.7	267.5	0.66	7.47	190.6	161.6	0.74	7.87	131.1	236.6	0.62	1.12	19.2	45.3	0.08
0146	0150	8.78	148.6	251.8	0.63	9.60	129.3	170.6	1.07	7.84	85.7	254.9	0.90	0.90	10.9	31.2	0.04
0110	0110	2.89	64.5	256.4	1.57	2.57	55.2	260.7	1.99	1.99	37.2	218.9	0.90	0.41	6.1	43.3	0.07
0147	0151	3.27	66.7	220.9	1.74	2.66	46.1	246.2	2.68	2.48	18.5	215.4	2.87	0.38	8.0	47.6	0.09
0147	0153R	3.26	63.1	242.1	1.88	2.66	48.2	248.2	2.46	2.52	32.7	272.2	2.92	0.35	9.3	44.1	0.16
0020	0020	0.59	28.2	231.6	0.82	0.63	25.6	221.3	1.06	0.60	14.4	218.9	0.92	0.17	1.8	28.2	0.06
0111	0111	4.05	75.5	218.2	1.11	3.23	63.7	215.5	1.78	4.51	48.5	226.9	1.78	0.40	8.6	32.0	0.09
0117	0117	7.00	71.8	226.6	1.94	5.14	69.1	231.6	2.40	6.30	70.5	184.8	1.92	1.76	13.9	24.0	0.09
0142	0144	4.23	54.0	141.2	3.07	3.32	57.2	147.1	3.71	5.44	47.0	155.8	1.39	1.51	7.6	16.2	0.07
0036	0036	3.88	58.8	179.5	0.96	3.46	62.4	113.9	1.13	3.94	62.8	164.5	0.64	0.74	5.5	22.8	0.04
0097	0097	5.96	95.3	247.4	1.70	4.52	90.3	147.4	2.05	6.38	109.3	196.8	1.09	1.85	17.9	20.6	0.02
0080	0080	4.35	57.2	203.8	1.81	3.51	47.5	211.0	2.69	4.72	55.1	186.2	1.47	0.44	5.8	22.3	0.05
0050	0050	3.63	51.7	168.7	0.98	3.13	43.3	214.6	1.56	4.70	35.7	126.3	0.80	1.03	7.6	270.4	0.08
0103	0103	3.06	76.1	219.7	0.82	2.61	74.4	205.4	0.76	3.86	94.9	268.4	0.79	1.04	18.9	25.1	0.03
0073	0073	3.45	96.6	151.9	0.43	2.99	94.1	151.5	0.51	4.03	90.0	160.3	0.85	0.68	15.2	26.3	0.05
0076	0076	4.35	72.7	272.3	2.26	3.59	66.4	251.1	3.36	5.67	92.6	195.4	1.01	0.79	11.2	18.4	0.09
0127	0129	5.30	83.5	418.4	4.45	4.86	78.7	409.5	3.76	4.25	49.9	396.2	3.21	0.84	11.9	30.9	0.10
0024	0024	2.27	58.4	280.6	1.97	0.87	58.9	270.9	2.63	3.07	30.6	279.3	2.42	0.15	2.8	30.8	0.09
0119	0119	3.00	69.9	243.7	1.64	2.85	67.7	242.2	2.28	2.73	68.6	192.8	0.84	0.28	2.2	32.6	0.12

CAR#	RUN#	ACCEL/DECEL HC	ACCEL/DECEL CO	ACCEL/DECEL CO2	ACCEL/DECEL NOX	ACCEL/DECEL CALCULATED HC	ACCEL/DECEL CALCULATED CO	ACCEL/DECEL CALCULATED CO2	ACCEL/DECEL CALCULATED NOX	SHORT CYCLE HC	SHORT CYCLE CO	SHORT CYCLE CO2	SHORT CYCLE NOX	STEADY STATE-IDLE HC	STEADY STATE-IDLE CO	STEADY STATE-IDLE CO2	STEADY STATE-IDLE NOX
0064	0064	4.12	150.1	546.8	3.20	4.42	158.2	537.3	2.20	3.98	124.1	514.9	1.50	1.00	29.4	81.4	0.09
0049	0049	2.96	21.4	589.6	6.96	2.89	19.3	575.0	6.32	2.61	11.4	525.0	4.15	0.40	2.4	124.1	0.07
0067	0067	5.57	60.6	430.8	3.01	4.26	50.4	539.2	4.97	4.88	63.9	450.4	4.58	1.82	22.6	52.9	0.08
0132	0147	4.15	97.8	384.0	4.74	4.06	50.9	421.4	5.88	4.05	67.1	377.1	2.95	0.85	18.7	56.9	0.07
0115	0122	3.17	48.2	412.4	7.52	3.28	17.6	471.0	11.16	3.72	45.7	435.5	4.79	1.11	15.7	95.6	0.12
0150	0163	7.24	226.3	184.1	0.70	6.26	213.4	296.1	0.70	6.02	166.3	302.4	0.40	0.58	10.4	72.5	0.07
0071	0071	5.22	63.3	298.4	3.58	4.62	62.6	384.2	2.96	3.44	73.2	269.4	1.99	1.69	19.3	87.4	0.07
0145	0159	4.42	30.3	183.5	2.66	2.98	20.4	184.3	3.31	6.41	36.1	146.5	1.51	2.83	15.4	21.0	0.05
0089	0090	5.82	91.5	613.2	3.79	5.75	94.8	491.4	5.95	3.77	121.0	434.1	1.71	1.78	28.8	74.6	0.07
0169	0186	47.79	102.8	548.3	6.90	45.73	52.6	557.8	8.72	41.31	76.6	460.2	5.37	6.91	16.2	74.9	0.13
0022	0021	3.52	56.7	517.7	7.71	3.13	45.7	562.6	4.70	3.74	83.8	408.1	3.26	1.23	31.0	60.9	0.04
0012	0012	7.83	173.8	653.0	5.92	6.18	154.7	589.8	2.71	5.02	107.3	615.9	6.10	1.02	29.6	75.8	0.09
0138	0149	6.13	191.2	543.9	1.25	5.56	94.2	553.1	1.57	4.11	104.0	523.9	1.00	0.71	14.6	77.4	0.06
0082	0088	4.06	23.2	525.2	10.20	4.41	28.2	552.5	5.70	5.06	30.2	454.3	7.75	1.17	13.1	78.0	0.15
0008	0008	3.85	142.9	725.0	1.79	4.20	118.5	554.4	1.92	2.76	60.6	771.2	6.49	0.63	16.3	91.9	0.08
0093	0095	4.25	59.0	487.3	6.73	3.13	42.6	570.3	11.04	4.41	71.2	453.3	4.03	0.75	19.9	88.6	0.09
0101	0106	2.09	19.0	553.3	8.45	2.37	14.0	522.8	8.45	2.53	35.1	431.7	4.18	0.56	6.5	102.6	0.10
0114	0123	5.26	164.9	594.7	5.97	3.93	117.6	568.2	6.60	0.82	28.4	474.9	3.94	0.53	3.5	111.0	0.14
0135	0146	4.34	35.7	259.2	2.46	2.47	26.7	269.9	3.43	5.14	39.4	207.5	1.27	0.52	14.0	25.5	0.05
0085	0087	2.83	37.0	379.2	7.23	3.24	34.4	535.9	9.71	3.36	62.0	430.4	3.81	0.78	20.1	122.0	0.21
0116	0124	5.46	51.7	428.7	6.95	4.29	34.4	439.5	8.52	5.14	66.5	486.3	2.40	1.23	21.0	44.8	0.07
0136	0151	2.51	21.1	436.4	8.65	2.45	12.1	466.5	11.02	2.73	23.5	418.0	6.05	0.57	8.2	66.9	0.06
0136	0153R	2.25	15.0	387.6	8.56	2.25	8.9	474.3	12.45	2.80	24.0	412.7	6.14	0.57	8.7	67.3	0.07
0041	0044	2.65	33.4	480.6	6.90	2.76	23.4	542.4	5.83	2.40	39.5	472.1	6.50	0.52	13.7	79.7	0.07
0080	0083	3.26	23.2	439.8	7.27	3.15	24.0	474.2	4.92	3.49	28.1	386.0	4.52	0.52	14.2	67.6	0.13
0119	0129	3.11	36.8	395.7	6.14	3.23	24.2	471.9	8.46	3.49	48.3	397.5	4.43	0.71	13.4	85.2	0.10
0137	0150	4.28	26.3	546.4	8.57	3.70	14.8	537.2	9.92	3.12	35.7	432.5	3.69	0.90	22.6	66.9	0.05
0018	0017	7.86	158.1	387.7	2.51	4.74	151.7	340.9	2.71	9.87	206.4	285.2	0.56	1.23	31.7	43.0	0.04
0001	0026	2.14	47.7	184.3	1.82	1.86	40.8	187.4	1.06	3.65	69.8	216.6	0.93	1.02	27.3	42.9	0.03
0070	0070	1.58	34.7	364.1	5.56	1.85	39.1	378.2	3.20	1.96	50.2	305.9	3.09	0.34	12.4	50.1	0.07
0094	0099	5.60	58.4	436.6	4.30	3.91	59.1	453.3	6.11	4.66	61.4	392.4	2.23	0.68	9.4	60.5	0.09
0164	0176	2.76	42.5	373.0	5.20	2.85	43.1	385.8	5.94	2.69	39.5	340.4	2.15	0.43	2.3	74.9	0.17
0030	0032	6.22	201.6	421.4	3.53	4.44	109.4	343.8	2.39	7.82	117.9	327.4	1.54	2.07	33.0	54.2	0.03
0083	0086	10.82	87.9	368.0	3.88	7.53	77.2	388.0	5.51	6.34	229.7	812.6	3.09	1.93	25.5	52.8	0.08
0134	0144	9.08	82.7	338.2	2.79	7.51	48.8	361.4	3.84	9.53	89.1	278.5	1.02	2.70	14.9	29.0	0.06
0134	0145R	8.24	81.5	380.6	3.30	7.02	51.1	382.2	4.21	11.96	97.0	269.2	0.98	2.66	15.8	30.2	0.06
0005	0005	7.04	129.0	455.1	3.10	8.19	111.9	413.7	4.88	8.72	119.7	486.2	3.32	3.54	28.7	36.1	0.03
0059	0059	5.55	66.9	401.5	4.32	3.76	73.4	446.7	2.96	5.75	97.4	390.1	2.07	0.68	11.1	39.4	0.02
0099	0104	5.15	43.4	425.4	5.09	5.03	27.7	410.9	6.50	5.60	52.6	321.9	1.91	1.03	12.7	49.0	0.07
0086	0105	8.83	82.2	438.8	5.53	7.53	49.1	423.1	6.40	11.27	93.4	313.4	1.65	3.07	16.8	38.5	0.05
0158	0182	20.41	57.1	397.6	5.15	22.49	32.0	456.7	7.11	22.20	47.8	360.6	2.96	3.66	13.5	41.0	0.09
0062	0073	3.60	51.0	287.4	2.14	3.27	51.0	283.9	1.85	3.64	52.8	251.6	1.14	0.45	13.9	46.5	0.07
0076	0078	7.94	114.9	377.7	2.69	8.62	99.4	373.8	3.32	8.08	65.4	257.3	1.71	2.65	23.1	44.7	0.05
0106	0113	6.01	77.6	356.4	3.82	4.53	38.1	345.4	5.89	4.01	45.9	207.2	1.75	1.55	14.8	30.8	0.06
0110	0117	2.57	27.6	320.1	5.29	2.52	19.7	317.8	6.87	2.44	33.8	265.0	2.34	0.62	6.5	37.4	0.03
0160	0173	6.76	65.1	300.5	4.09	5.35	69.9	339.9	5.11	5.64	68.4	267.9	1.35	1.74	14.4	35.8	0.04
0148	0178	32.60	112.4	339.0	1.86	32.12	64.7	356.6	2.54	33.24	98.6	344.9	1.70	4.96	17.5	38.9	0.07
0029	0027	3.19	92.4	403.9	5.84	2.64	68.5	401.5	3.42	2.51	52.3	342.1	5.63	0.59	18.2	60.8	0.27
0050	0051	2.11	35.6	180.0	1.65	3.60	62.1	350.1	1.61	2.81	34.8	321.3	4.34	0.99	20.4	47.4	0.06
0073	0075	4.62	44.5	415.8	4.98	4.45	47.6	432.5	3.21	6.40	85.4	282.9	1.47	0.77	7.3	57.7	0.07

CAR#	RUN#	ACCEL/DECEL HC	ACCEL/DECEL CO	ACCEL/DECEL CO2	ACCEL/DECEL NOX	ACCEL/DECEL CALCULATED HC	ACCEL/DECEL CALCULATED CO	ACCEL/DECEL CALCULATED CO2	ACCEL/DECEL CALCULATED NOX	SHORT CYCLE HC	SHORT CYCLE CO	SHORT CYCLE CO2	SHORT CYCLE NOX	STEADY STATE-IDLE HC	STEADY STATE-IDLE CO	STEADY STATE-IDLE CO2	STEADY STATE-IDLE NOX
0130	0139	6.52	51.9	415.7	4.93	6.45	53.9	366.6	6.52	6.29	65.5	330.1	1.88	0.93	9.9	43.9	0.06
0156	0170	3.70	28.5	472.0	4.31	3.39	29.3	471.4	4.99	3.77	21.1	422.0	2.11	0.55	2.7	78.0	0.11
0087	0096	5.92	72.8	363.6	4.95	3.84	70.7	361.8	6.75	4.27	52.9	332.6	3.34	0.30	12.3	46.3	0.05
0024	0024	6.93	78.9	439.9	5.76	5.90	69.9	381.9	2.99	7.40	106.7	328.4	2.12	1.09	29.7	52.9	0.04
0058	0058	2.27	36.7	390.3	6.66	2.53	49.8	466.7	4.22	2.44	36.4	368.3	5.45	0.52	12.8	49.3	0.03
0139	0152	4.23	55.9	363.5	5.11	4.17	31.0	373.8	7.04	4.39	62.3	271.5	2.77	1.18	23.9	38.4	0.04
0149	0162	6.03	49.8	358.8	5.47	6.15	36.7	408.2	6.29	7.87	89.6	451.5	2.67	0.98	4.7	45.3	0.07
0040	0062	5.13	43.3	430.5	5.77	3.49	45.9	403.5	3.14	3.94	42.8	365.6	4.34	0.63	14.6	36.3	0.03
0112	0119	3.23	36.0	402.0	4.65	2.86	36.5	388.8	5.04	0.76	14.3	334.6	5.28	0.37	6.1	36.8	0.06
0142	0156	6.66	108.0	411.4	3.09	7.24	59.2	391.2	4.16	7.52	63.1	333.8	2.95	2.75	9.0	51.6	0.32
0034	0035	3.96	78.2	482.0	5.63	3.37	74.9	537.0	3.62	4.47	112.0	437.4	3.16	0.94	39.8	99.8	0.09
0152	0164	6.48	67.6	393.7	4.30	5.79	38.4	461.9	7.45	6.58	70.0	379.8	3.26	1.77	29.5	56.7	0.07
0078	0081	6.98	125.3	514.5	4.54	5.61	120.3	507.7	5.23	7.40	105.5	432.2	2.56	1.29	18.4	83.1	0.13
0113	0121	2.88	36.5	463.5	5.66	3.04	26.8	516.5	8.62	2.22	61.4	440.8	1.04	0.69	21.6	84.8	0.08
0125	0128	3.43	5.3	456.9	3.27	3.65	26.3	462.3	4.19	4.15	59.6	387.6	2.28	0.83	9.2	63.4	0.07
0154	0168	4.45	54.3	507.3	6.62	3.42	35.9	482.7	7.83	5.47	57.7	444.7	3.77	0.88	13.2	69.7	0.08
0032	0135	3.26	50.5	356.2	3.88	2.84	27.7	367.4	5.65	2.85	41.1	310.7	2.63	0.74	19.1	43.8	0.05
0167	0183	5.47	42.1	374.3	5.48	4.90	29.8	409.1	6.85	7.30	50.7	434.7	2.65	0.95	12.0	67.2	0.07
0061	0061	3.94	64.6	548.1	5.67	3.38	50.5	521.9	2.43	2.97	26.3	523.9	5.57	0.45	12.0	94.1	0.06
0096	0101	3.92	45.9	405.9	2.98	4.47	92.4	466.7	3.76	3.73	56.9	429.2	3.30	0.57	3.0	103.4	0.24
0168	0181	4.04	41.0	331.2	5.32	3.96	22.9	362.7	7.35	3.28	25.1	309.8	3.50	0.42	2.1	53.5	0.15
0126	0138	3.88	63.2	310.5	2.43	3.69	41.9	359.8	4.16	5.51	105.2	263.0	0.70	0.66	12.6	33.6	0.04
0161	0174	2.38	28.0	374.9	6.50	2.32	19.1	404.6	7.83	3.00	39.8	343.6	3.74	0.69	10.6	47.8	0.21
0026	0029	1.19	34.7	274.1	2.83	1.42	30.1	275.5	2.95	1.30	34.9	297.4	1.26	0.15	7.5	46.0	0.03
0069	0069	3.10	46.6	521.2	6.87	3.33	52.1	615.1	4.63	4.75	110.8	422.3	2.93	1.06	25.8	85.3	0.08
0165	0185	0.90	8.4	573.5	8.16	1.48	6.2	603.9	9.44	1.55	27.5	591.5	3.80	0.35	10.2	132.2	0.25
0007	0007	3.34	51.7	985.8	3.07	2.90	30.7	643.7	3.77	2.03	40.3	618.8	6.12	0.48	15.2	140.7	0.09
0120	0125	1.45	6.9	302.4	9.12	1.75	5.4	351.3	11.90	1.78	14.7	311.5	5.14	0.44	11.6	51.6	0.06
0133	0143	3.06	26.9	501.2	4.79	3.43	26.4	488.6	4.60	2.32	23.1	422.5	4.01	0.51	9.3	95.7	0.15
0033	0034	6.71	55.7	523.9	6.39	7.41	43.3	591.1	4.30	5.16	44.6	577.8	7.59	3.02	23.7	57.0	0.06
0035	0036	4.42	38.9	599.6	4.00	2.49	37.2	607.9	5.36	2.43	60.1	477.3	22.89	0.73	32.9	74.7	0.09
0146	0160	2.70	21.1	349.7	7.29	3.10	13.1	437.9	11.47	3.24	42.9	310.9	4.37	0.74	17.6	72.4	0.10
0155	0169	2.75	37.0	400.9	7.96	2.62	20.1	410.1	9.86	2.68	36.6	321.6	6.18	0.65	20.3	46.5	0.07
0155	0171R	2.71	38.1	429.7	8.17	2.39	20.3	402.6	9.32	2.69	36.7	328.7	5.98	0.70	20.3	45.9	0.07
0013	0013	3.98	53.0	606.0	6.08	4.06	53.3	522.2	4.59	5.43	129.0	493.8	4.83	1.02	46.2	83.1	0.11
0031	0033	1.83	16.9	465.6	6.15	1.91	12.4	503.2	3.80	1.96	23.3	472.5	5.07	0.32	15.5	82.0	0.08
0031	0047R	1.39	24.9	502.6	5.96	1.86	20.7	546.6	5.55	1.37	25.2	463.9	6.00	0.26	24.3	81.5	0.16
0060	0060	2.92	22.7	703.8	6.47	3.21	22.1	618.9	5.36	3.41	30.7	582.8	6.32	0.75	11.7	94.7	0.19
0159	0172	2.73	13.8	367.7	9.92	1.82	9.0	389.5	12.12	1.63	16.4	556.3	6.65	0.34	8.0	45.2	0.08
0043	0046	8.07	105.4	440.2	3.65	5.93	96.1	393.6	2.77	6.46	104.7	393.3	2.23	1.28	18.8	44.5	0.03
0051	0050	5.86	67.0	351.7	4.17	4.52	65.4	380.0	2.79	4.83	66.4	323.9	1.57	1.29	22.8	40.8	0.05
0072	0074	4.91	57.9	433.1	0.50	4.79	56.4	490.2	4.20	4.46	65.5	465.6	0.53	0.72	20.0	72.6	0.08
0105	0112	7.55	79.3	469.7	0.75	8.34	49.4	465.2	0.73	11.97	51.7	400.4	0.32	7.77	15.8	80.1	0.05
0141	0155	4.36	28.2	557.5	5.26	4.50	20.0	590.2	6.40	3.33	43.4	525.6	2.36	0.96	18.6	61.1	0.06
0021	0022	6.49	56.8	540.9	5.68	5.25	47.3	486.8	5.63	4.50	67.4	561.5	9.87	1.20	22.5	58.2	0.10
0084	0085	4.42	18.8	402.0	8.34	4.65	29.1	524.9	6.17	5.68	19.9	499.8	7.43	1.77	3.0	76.5	0.09
0045	0040	3.92	36.8	504.0	4.28	3.92	34.3	466.0	5.13	4.58	48.8	389.7	5.23	0.68	11.6	57.9	0.09
0056	0052	4.44	142.2	467.8	2.08	3.91	117.5	435.6	1.61	3.64	95.7	382.0	1.63	0.40	14.5	53.0	0.04
0107	0114	62.55	55.9	472.3	4.63	51.45	29.0	465.5	7.22	52.73	59.7	397.6	2.92	7.71	16.3	49.9	0.09
0129	0140	4.05	34.4	359.2	5.41	3.87	32.1	402.5	5.45	5.36	61.4	331.9	4.50	1.31	26.7	57.5	0.06

CAR#	RUN#	ACCEL/DECEL HC	ACCEL/DECEL CO	ACCEL/DECEL CO2	ACCEL/DECEL NOX	ACCEL/DECEL CALCULATED HC	ACCEL/DECEL CALCULATED CO	ACCEL/DECEL CALCULATED CO2	ACCEL/DECEL CALCULATED NOX	SHORT CYCLE HC	SHORT CYCLE CO	SHORT CYCLE CO2	SHORT CYCLE NOX	STEADY STATE-IDLE HC	STEADY STATE-IDLE CO	STEADY STATE-IDLE CO2	STEADY STATE-IDLE NOX
0074	0079	4.24	61.7	369.6	4.28	4.09	60.2	371.7	3.20	4.09	44.5	334.9	3.33	1.08	10.6	44.0	0.07
0111	0118	8.61	106.2	391.3	1.25	9.24	72.3	376.4	1.35	7.59	71.9	471.1	1.13	2.02	1.5	69.1	0.08
0143	0161	3.99	36.4	419.8	4.30	3.58	19.7	458.8	7.23	3.21	13.8	399.9	4.92	0.40	1.5	71.3	0.12
0144	0158	7.65	97.7	362.6	2.67	7.09	69.0	397.4	3.78	8.67	113.1	331.9	1.49	2.91	36.5	44.6	0.24
0075	0076	3.65	40.6	411.6	4.70	4.19	51.0	507.8	3.21	5.69	76.5	374.3	3.18	1.16	18.0	72.7	0.06
0091	0093	3.19	21.9	409.4	6.97	3.38	23.9	337.6	4.61	3.70	37.1	320.9	3.93	0.66	4.1	35.5	0.08
0128	0142	4.44	51.8	295.7	2.72	4.94	25.1	311.0	4.36	3.80	38.5	247.6	1.80	0.74	2.4	44.3	0.25
0004	0004	1.76	30.4	332.2	6.49	1.69	26.7	316.5	3.05	2.22	26.9	310.7	4.52	0.46	1.4	35.4	0.60
0025	0023	4.64	142.1	563.5	3.98	3.73	119.7	602.2	2.10	4.41	197.4	519.6	1.30	1.56	66.6	86.0	0.05
0079	0082	2.84	24.8	478.0	5.34	3.16	30.1	560.0	5.02	3.61	54.3	447.0	3.40	0.72	18.1	76.2	0.05
0063	0063	4.59	28.1	526.5	6.42	5.38	34.4	615.7	5.28	5.41	41.0	550.1	6.26	0.85	13.2	124.3	0.05
0042	0077	3.53	36.3	466.2	5.42	4.20	37.3	535.3	3.87	2.80	32.5	401.0	3.44	0.20	1.8	73.3	0.07
0151	0167	3.73	27.5	495.3	2.28	3.71	25.7	476.1	5.03	4.88	38.2	412.0	5.71	0.00	14.8	69.5	0.13
0124	0133	2.22	18.1	387.8	5.72	2.46	12.7	452.0	9.33	2.61	35.4	410.0	3.56	0.57	14.3	80.0	0.13
0124	0137R	2.41	18.7	394.7	6.73	2.43	11.5	460.1	8.73	2.68	29.6	450.6	4.72	0.65	14.3	80.8	0.14
0127	0134	3.31	19.3	393.6	6.84	3.12	11.3	431.3	9.19	4.02	48.9	314.5	2.83	0.73	13.5	48.5	0.09
0153	0165	22.48	41.4	382.1	6.35	24.71	26.6	455.0	9.63	21.50	62.0	361.9	3.73	7.22	23.3	40.0	0.06
0044	0041	2.23	24.6	543.2	5.83	2.34	21.4	618.2	4.46	2.36	23.9	523.7	5.08	0.48	7.2	91.3	0.08
0140	0154	5.41	12.9	496.7	5.20	6.70	7.0	508.3	6.98	9.78	24.9	454.1	2.44	4.63	6.0	80.1	0.13
0140	0157R	5.49	18.7	437.7	3.75	6.07	10.5	475.9	6.21	9.46	30.3	438.5	2.02	3.55	10.4	79.5	0.11
0053	0054	5.78	57.5	443.5	5.55	4.62	63.6	502.3	3.34	6.81	83.8	446.9	3.76	1.25	10.7	48.3	0.05
0100	0108	6.79	43.8	475.0	6.11	5.06	25.4	461.7	7.58	8.39	55.0	316.1	2.12	2.74	14.1	37.9	0.07
0100	0111R	6.00	35.3	481.6	6.93	4.43	23.5	466.3	6.79	8.68	44.6	349.7	1.82	1.46	9.1	31.8	0.07
0017	0018	5.50	97.1	389.8	3.94	5.34	79.1	381.3	1.41	5.12	105.0	372.6	1.39	1.62	35.0	44.9	0.04
0162	0175	6.25	78.3	473.9	6.47	5.83	47.7	464.5	7.31	7.64	90.8	380.7	3.11	2.24	30.2	56.7	0.07
0039	0043	2.91	41.4	797.0	3.25	2.28	41.5	711.4	3.36	1.73	23.5	689.8	0.33	0.41	6.0	118.9	0.26
0081	0084	4.35	70.2	376.4	3.88	3.22	58.7	426.0	6.13	5.41	66.1	335.8	3.42	1.34	17.7	34.7	0.05
0123	0130	4.66	69.8	493.0	4.99	3.60	56.8	487.4	5.70	4.74	77.4	330.0	2.08	0.79	23.2	55.7	0.08
0010	0010	4.33	99.6	484.5	3.46	4.23	85.5	516.5	3.05	4.02	26.6	496.9	5.56	0.57	14.8	94.6	0.10
0118	0127	5.04	44.3	475.2	4.77	4.17	25.6	494.0	5.57	5.19	63.7	534.4	1.94	1.88	22.0	93.8	0.04
0088	0091	2.95	40.3	410.6	4.95	3.71	53.5	377.8	9.75	4.07	74.2	408.7	2.47	0.55	9.1	102.4	0.13
0088	0098R	2.97	50.1	431.1	5.59	3.26	57.1	450.1	8.10	4.22	90.6	395.9	2.44	0.54	12.3	109.1	0.13
0006	0006	2.97	37.8	543.2	2.54	2.99	25.2	480.1	3.59	2.42	10.1	460.8	7.47	0.28	1.9	89.0	0.12
0103	0110	3.38	47.5	476.2	6.39	3.35	28.4	476.9	8.61	3.05	47.5	382.6	2.77	0.46	8.5	98.6	0.10
0029	0031	6.50	109.3	334.0	2.81	3.43	92.3	341.2	1.83	6.25	112.5	259.2	1.21	1.26	26.3	31.7	0.03
0057	0057	4.85	135.0	409.6	2.02	5.30	119.0	344.0	1.91	9.51	122.2	247.1	0.38	1.12	13.3	52.2	0.01
0097	0102	5.10	80.0	406.1	5.16	3.60	69.2	420.9	7.17	6.09	85.5	275.1	2.59	0.83	23.1	34.1	0.08
0157	0180	2.72	30.4	387.5	6.45	2.38	27.1	367.2	3.24	2.68	33.8	280.2	2.68	0.54	7.0	38.2	0.09
0011	0011	4.10	61.1	544.6	6.42	3.34	53.8	523.5	2.64	5.79	132.4	506.2	1.87	1.23	41.5	102.7	0.08
0011	0016R	3.04	35.4	523.7	5.37	3.81	45.9	544.6	3.31	3.14	61.8	404.8	1.87	1.08	16.5	185.9	1.47
0065	0065	4.82	102.9	509.0	5.30	4.43	93.0	550.9	3.56	6.66	122.3	424.2	3.25	2.39	47.6	69.8	0.12
0015	0015	2.92	41.5	574.7	3.29	2.87	23.1	538.9	3.75	2.83	40.5	606.8	8.65	0.44	9.5	90.8	0.11
0104	0109	1.42	16.3	482.8	5.31	2.25	16.5	468.0	4.89	2.63	28.6	505.5	6.17	0.12	14.1	75.0	0.08
0052	0053	3.08	28.1	534.7	5.73	2.89	23.4	454.3	4.95	2.49	21.0	428.2	5.60	0.56	13.6	59.5	0.07
0092	0094	2.05	40.6	431.3	8.10	1.93	42.4	468.5	9.41	1.99	44.7	341.9	4.25	0.61	22.9	63.3	0.09
0014	0014	4.38	56.0	592.7	3.49	5.26	44.4	560.6	3.78	12.46	18.5	463.2	8.77	3.35	5.4	317.9	2.47
0054	0056	1.52	22.5	414.1	6.84	2.70	26.3	487.9	4.22	3.05	39.9	469.0	4.52	0.75	18.8	80.5	0.06
0131	0141	5.67	91.6	461.6	4.51	5.88	58.2	503.4	5.76	7.72	96.6	417.2	1.55	1.25	12.6	71.2	0.07
0019	0020	5.40	137.7	337.5	3.71	3.87	106.0	334.9	2.86	3.93	78.0	278.4	2.79	1.00	30.5	39.0	0.04
0055	0055	3.16	36.9	402.5	4.49	3.06	36.6	410.2	2.55	3.25	28.6	355.0	2.69	1.17	6.9	65.2	0.01

		ACCEL/DECEL				ACCEL/DECEL CALCULATED				SHORT CYCLE				STEADY STATE-IDLE			
CAR#	RUN#	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX
0109	0116	4.25	28.8	479.6	10.99	3.43	17.8	508.3	13.90	4.05	39.3	410.6	5.57	1.37	13.6	54.6	0.05
0117	0126	3.47	32.5	362.6	20.45	3.15	31.6	375.9	2.73	4.80	41.2	294.7	2.52	1.39	15.8	45.3	0.07
0147	0166	56.40	76.2	460.4	4.34	50.13	40.2	489.4	6.52	45.87	37.5	394.5	4.33	7.77	2.1	59.8	0.14
0016	0019	5.34	76.5	558.7	6.02	5.64	49.8	553.5	2.57	7.34	41.7	724.2	6.99	2.95	2.5	94.3	0.10
0163	0179	6.11	175.7	473.4	2.74	5.50	81.8	463.6	3.45	5.24	29.8	464.6	2.69	1.28	1.5	83.5	0.11
0166	0184	1.16	11.0	196.1	4.50	1.07	6.8	194.8	4.42	1.43	11.3	195.0	3.44	0.35	2.1	53.5	0.12
0108	0115	4.64	98.8	423.8	2.50	4.84	108.2	423.2	3.38	4.07	57.0	1.8	1.69	1.04	16.6	83.7	0.09
0108	0120R	4.56	98.4	423.1	2.39	10.95	267.3	382.8	1.90	3.94	59.1	379.9	0.57	0.51	17.4	80.6	0.07
0170	0187	5.51	109.4	410.8	4.51	5.64	53.7	410.2	6.29	7.35	68.8	385.6	3.26	2.68	9.4	62.2	0.31
0090	0092	1.31	16.2	346.9	6.23	1.42	13.2	350.2	7.65	1.59	44.7	281.3	2.65	0.40	12.0	76.8	0.10
0036	0037	2.12	38.6	426.6	5.21	1.88	30.3	380.4	2.64	1.38	37.2	355.1	4.13	0.33	19.9	52.1	0.05
0068	0068	3.21	28.3	419.0	5.72	3.45	24.0	500.6	3.80	3.13	42.6	438.3	3.50	0.45	7.2	82.8	0.14
0023	0025	3.65	146.0	336.6	1.30	3.67	131.7	331.8	1.57	3.49	87.8	318.5	1.41	1.00	19.9	87.6	0.12
0048	0048	4.08	50.5	392.0	4.13	3.29	43.5	353.6	2.32	2.44	31.6	404.9	3.32	0.41	8.9	45.0	0.08
0047	0045	5.02	116.2	347.1	1.96	4.04	103.7	293.0	1.27	4.51	134.8	335.7	1.14	0.98	42.2	73.3	0.08
0098	0103	1.56	25.3	251.4	2.85	1.72	12.8	289.9	4.73	1.02	22.0	316.2	2.35	0.23	4.0	45.2	0.07
0003	0003	2.57	54.8	521.6	4.33	1.99	29.4	384.1	1.78	3.07	56.3	1087.1	4.17	0.11	0.2	55.0	0.04
0038	0039	1.73	46.9	246.2	3.60	1.71	33.8	223.3	1.62	1.23	30.5	484.9	3.41	0.31	7.5	32.8	0.05
0102	0107	2.21	16.8	255.3	3.93	1.75	8.8	266.9	4.77	1.29	12.3	253.5	2.52	0.15	1.5	66.3	0.07
0046	0042	2.34	36.0	365.4	5.43	1.57	24.4	308.1	2.60	1.29	16.3	312.3	1.91	0.73	6.3	35.1	0.04
0077	0080	6.63	53.8	276.7	3.30	4.48	50.6	238.3	4.07	5.40	56.2	168.0	1.01	2.26	13.7	20.8	0.05
0095	0100	5.17	45.5	256.6	3.22	14.97	43.8	226.5	3.54	5.83	48.7	245.9	2.02	0.95	13.2	26.5	0.05
0066	0046	3.44	30.3	245.1	3.43	3.03	22.9	241.7	2.18	3.37	26.7	228.1	1.80	0.53	7.6	21.8	0.09
0037	0038	6.28	59.5	264.4	3.78	3.81	46.4	257.5	2.30	8.39	56.3	176.9	1.73	1.72	19.8	18.0	0.01
0121	0132	4.75	21.3	220.4	2.81	2.36	17.6	228.1	4.26	6.61	23.0	222.0	1.61	1.03	2.4	36.2	0.04
0002	0028	24.56	48.0	196.5	1.46	24.26	39.5	191.8	1.82	23.13	29.3	226.8	2.69	2.50	7.2	16.7	0.05
0122	0131	3.02	18.1	213.6	3.93	3.81	8.2	212.5	4.62	3.22	13.2	171.2	2.07	1.72	3.3	28.8	0.09
0027	0030	7.66	151.0	174.5	0.42	5.96	122.1	168.8	0.45	9.90	136.3	144.6	0.31	2.21	16.2	26.0	0.01
0009	0009	1.46	12.8	173.9	5.13	1.63	9.8	270.3	7.10	1.87	6.0	239.9	3.83	0.16	5.6	16.8	0.02

CAR#	RUN#	ACCEL/DECEL HC	ACCEL/DECEL CO	ACCEL/DECEL CO2	ACCEL/DECEL NOX	ACCEL/DECEL CALCULATED HC	ACCEL/DECEL CALCULATED CO	ACCEL/DECEL CALCULATED CO2	ACCEL/DECEL CALCULATED NOX	SHORT CYCLE HC	SHORT CYCLE CO	SHORT CYCLE CO2	SHORT CYCLE NOX	STEADY STATE-IDLE HC	STEADY STATE-IDLE CO	STEADY STATE-IDLE CO2	STEADY STATE-IDLE NOX
0169	0179	1.65	37.6	721.3	3.09	2.00	52.3	601.5	3.86	2.31	56.9	540.7	2.55	0.83	28.9	130.5	0.37
0029	0032	4.20	33.4	625.5	8.96	3.83	42.7	573.1	9.93	3.98	63.6	534.0	3.89	1.19	26.3	130.2	0.74
0143	0153	3.53	34.4	683.2	9.40	4.04	44.4	577.7	11.77	3.69	49.2	571.8	6.65	0.88	22.8	100.4	0.10
0023	0024	7.31	108.1	448.4	5.11	6.55	121.0	430.2	5.41	7.29	152.4	395.2	1.69	1.69	30.0	77.5	0.07
0023	0025R	7.13	110.9	531.7	6.82	7.34	105.8	444.3	5.96	7.02	152.2	386.1	1.80	1.51	28.4	79.5	0.07
0037	0040	4.47	74.2	513.3	6.71	4.61	92.6	481.7	6.07	4.62	110.3	442.4	2.19	0.85	25.9	113.2	0.09
0003	0003	4.82	83.5	397.0	2.15	4.66	101.7	382.3	2.14	5.93	94.3	410.8	1.41	0.89	12.4	72.6	0.03
0041	0045	5.15	80.6	337.1	3.02	4.16	95.1	359.0	3.95	4.39	98.8	383.9	2.44	1.09	32.6	40.8	0.01
0012	0012	13.78	131.0	522.6	2.60	12.45	131.1	493.1	3.01	17.24	131.4	410.4	1.57	3.69	33.5	79.5	0.02
0168	0178	9.33	101.6	477.7	5.23	8.47	114.9	472.3	5.85	10.52	125.8	400.2	3.04	2.43	45.4	107.6	0.53
0116	0126	4.94	34.6	459.3	7.93	4.60	47.0	479.3	8.35	5.71	61.8	405.1	3.04	1.22	19.2	77.0	0.02
0072	0078	6.56	63.1	600.7	5.72	5.99	72.9	551.1	6.11	5.84	67.4	451.5	2.67	0.98	17.1	124.8	0.01
0072	0082R	6.29	64.1	568.2	5.29	5.76	72.9	546.1	6.13	5.97	68.6	435.9	2.53	1.61	20.3	155.4	0.02
0158	0168	4.09	85.5	711.9	7.35	3.78	91.9	633.2	4.58	4.15	93.9	513.5	1.70	1.74	35.7	88.6	0.06
0145	0155	5.05	51.9	713.0	8.18	4.52	56.7	615.7	8.55	4.22	48.1	512.7	4.88	0.74	21.4	88.0	0.04
0098	0106	3.40	37.5	247.1	1.48	2.40	27.2	257.9	1.58	2.40	34.9	266.0	1.11	0.37	15.7	32.8	0.03
0117	0127	2.53	34.3	743.3	7.66	2.38	27.0	663.4	8.62	2.15	23.7	587.3	4.31	0.45	6.1	96.8	0.04
0142	0152	1.60	29.5	602.5	5.79	2.57	32.8	584.0	7.02	1.80	24.3	533.8	3.69	0.64	15.6	88.0	0.10
0150	0160	4.25	39.8	441.8	6.73	3.96	49.6	447.2	6.92	4.86	20.8	317.3	2.47	1.81	21.7	42.5	0.04
0153	0163	1.70	39.2	644.0	6.43	2.15	48.2	557.6	5.42	3.33	21.0	622.4	5.64	0.35	5.3	91.6	0.05
0155	0165	1.81	39.7	605.8	4.29	2.02	61.6	519.4	4.44	3.07	71.1	474.8	1.42	2.17	39.6	45.8	0.01
0163	0173	1.77	28.0	663.2	6.37	3.48	18.8	600.4	6.95	1.94	30.3	616.1	3.00	0.62	14.2	121.4	0.07
0006	0004	3.93	65.5	552.0	8.95	3.71	78.5	518.4	9.38	4.91	88.1	454.0	5.87	1.04	33.8	86.8	0.07
0106	0115	2.83	38.0	580.4	6.46	2.87	22.8	505.5	6.77	3.00	34.5	480.5	3.83	0.39	6.1	74.4	0.07
0122	0132	3.72	40.7	608.7	7.64	3.47	48.9	535.3	7.63	3.53	48.8	436.8	3.54	1.06	22.5	111.8	0.73
0147	0157	3.83	49.0	584.1	8.00	3.54	51.9	546.0	9.59	4.43	88.2	493.5	3.33	0.81	26.9	88.1	0.69
0011	0011	5.83	33.4	424.2	6.60	4.53	44.4	427.8	6.52	7.19	45.2	337.1	4.27	2.10	23.4	35.1	0.04
0104	0113	2.93	48.4	509.4	2.03	2.99	41.3	485.5	5.95	4.14	64.3	460.7	0.98	0.60	24.1	92.1	0.02
0107	0116	2.66	24.2	642.2	9.15	3.03	33.1	562.6	9.72	2.91	28.8	479.2	6.22	1.16	9.5	98.7	0.10
0125	0135	5.16	63.5	599.2	6.54	4.43	80.2	592.3	7.85	5.88	80.3	541.5	4.31	1.87	39.4	58.8	0.03
0013	0013	5.90	91.4	452.6	3.42	5.43	109.1	459.4	3.99	5.67	108.8	452.7	1.76	0.89	28.3	67.6	0.03
0043	0048	5.12	37.4	597.6	7.50	4.36	30.2	521.5	7.39	5.03	55.4	586.5	3.85	1.87	15.8	101.1	0.04
0057	0063	4.50	29.2	457.2	6.54	3.77	41.7	473.1	6.56	3.78	35.6	439.6	2.34	0.76	20.9	67.3	0.03
0059	0065	18.42	145.7	592.5	2.62	17.46	162.8	507.9	2.84	22.33	252.6	413.2	0.42	7.43	53.9	53.2	0.02
0035	0038	7.65	65.5	495.4	4.24	6.41	74.0	480.9	4.25	6.33	45.2	435.3	3.12	1.56	25.4	40.2	0.01
0035	0043R	7.13	59.6	428.9	3.33	6.25	70.9	434.1	3.48	6.63	67.8	365.3	1.87	1.18	22.7	45.9	0.02
0078	0036	3.68	13.6	405.1	7.41	3.40	14.0	392.9	7.45	3.49	23.8	331.1	3.38	0.51	4.7	44.3	0.05
0105	0114	6.02	62.8	481.8	3.82	5.53	86.1	456.4	4.34	6.25	92.7	428.5	1.53	1.68	36.5	72.7	0.07
0042	0047	3.38	25.9	503.0	4.20	3.44	38.6	476.9	4.64	3.44	39.0	398.3	1.37	0.64	8.8	71.2	0.06
0097	0105	5.37	54.2	486.3	6.19	5.88	80.0	421.4	6.02	8.17	49.1	388.6	2.80	2.12	35.6	139.8	0.80
0112	0122	5.15	30.2	550.6	9.41	5.05	47.4	467.4	9.45	5.21	65.4	444.5	3.56	1.63	27.8	48.2	0.03
0118	0128	3.82	74.2	379.2	5.06	3.21	76.7	379.8	4.97	3.24	37.7	300.9	1.31	0.59	15.0	35.1	0.01
0007	0007	9.19	174.9	413.8	1.39	8.61	196.1	429.6	1.51	9.67	168.9	393.7	0.69	0.96	17.3	64.3	0.03
0015	0015	6.02	61.6	545.0	4.42	4.96	75.3	498.2	4.59	6.82	83.3	432.0	1.47	1.98	31.0	56.9	0.10
0060	0066	6.07	64.5	597.2	6.20	6.26	79.4	497.3	5.57	6.63	79.6	445.8	2.71	2.01	27.5	150.3	0.83
0141	0151	5.98	72.8	447.7	5.35	5.63	82.2	445.1	4.60	4.27	81.8	354.6	1.45	0.96	16.2	64.2	0.07
0081	0089	7.63	80.9	461.9	4.84	6.09	87.6	426.9	4.51	8.53	109.5	374.4	1.63	2.38	34.9	72.8	0.18
0086	0094	5.01	47.4	468.7	6.95	3.89	56.9	435.3	5.93	5.68	55.4	425.2	3.99	1.01	18.3	60.7	0.05
0087	0095	5.38	26.3	443.9	8.83	6.16	33.4	504.1	11.05	11.80	31.3	456.3	5.64	2.62	30.1	34.3	0.01
0090	0098	3.54	86.2	276.7	3.12	3.59	95.2	300.2	3.02	3.90	91.9	304.5	1.90	1.50	36.6	101.0	0.46

		ACCEL/DECEL				ACCEL/DECEL CALCULATED				SHORT CYCLE				STEADY STATE-IDLE			
CAR#	RUN#	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX
0005	0005	5.57	82.8	510.7	4.23	4.94	95.7	464.6	3.28	5.97	103.2	471.2	0.92	1.25	29.9	57.0	0.04
0063	0069	8.47	86.9	473.6	3.37	6.44	95.0	367.8	2.69	7.14	106.9	347.1	0.81	2.14	32.6	43.7	0.07
0084	0092	7.41	88.5	426.6	4.40	6.35	98.5	358.6	3.67	8.51	109.8	390.7	2.63	2.71	33.8	117.7	0.67
0137	0147	4.99	75.2	324.7	3.27	3.46	79.8	338.1	3.95	3.87	60.1	285.5	2.96	0.44	8.5	35.6	0.04
0028	0031	3.92	49.0	355.2	2.99	3.08	59.3	340.2	3.01	2.19	42.0	268.3	1.78	0.29	12.2	36.7	0.04
0038	0041	7.54	144.2	391.2	1.74	7.06	165.8	397.7	1.75	11.07	175.3	374.5	0.94	1.71	31.7	43.8	0.04
0135	0145	3.39	48.4	465.7	4.25	3.28	61.2	464.7	4.53	2.99	61.8	361.3	1.11	0.58	10.0	83.3	0.09
0030	0033	9.81	9.0	443.2	5.04	9.31	9.1	460.7	5.78	9.78	15.6	393.4	3.83	2.65	0.1	70.2	0.04
0160	0170	6.98	108.7	345.5	1.72	6.25	127.5	339.6	1.85	7.30	124.4	339.1	0.73	0.99	15.3	34.9	0.04
0054	0059	5.47	69.0	503.9	2.67	5.10	82.8	480.8	2.96	5.92	94.0	642.2	1.19	1.75	34.1	43.9	0.01
0024	0026	4.71	64.3	333.1	1.96	4.23	78.8	335.3	2.07	6.02	87.3	286.8	0.80	1.07	28.0	41.9	0.04
0131	0141	3.66	78.5	709.9	4.41	3.61	92.0	613.7	4.61	4.35	99.9	571.6	2.14	1.39	33.0	147.4	0.19
0159	0169	4.58	95.6	710.6	3.03	4.66	119.8	610.6	2.86	5.69	125.6	490.5	1.29	0.80	29.7	67.7	0.04
0126	0136	2.12	34.9	445.7	7.85	2.09	39.8	440.9	8.54	1.71	44.8	320.0	3.04	0.37	19.7	49.2	0.05
0152	0162	4.29	61.8	728.7	7.70	4.22	73.1	581.6	6.91	4.15	100.9	605.2	2.30	1.39	37.0	138.3	0.40
0050	0055	6.41	101.2	455.2	2.85	6.04	111.2	458.9	3.00	4.76	115.9	414.8	1.31	1.18	43.5	141.5	0.05
0089	0097	7.29	174.4	383.3	0.77	7.12	188.4	383.4	0.97	1.07	143.7	312.8	0.33	0.33	11.9	43.1	0.05
0109	0118	5.31	92.8	523.1	3.67	4.44	95.4	470.0	4.32	4.14	44.2	417.0	0.77	1.16	19.8	70.0	0.04
0108	0117	2.97	17.4	586.1	10.05	2.79	27.5	551.0	11.24	2.65	26.7	434.6	5.24	0.70	16.5	69.6	0.05
0108	0121R	3.34	26.3	591.5	9.51	3.29	30.6	526.2	9.92	3.69	38.0	454.2	6.04	1.31	23.3	60.0	0.01
0065	0071	3.99	83.3	465.9	6.82	3.87	92.4	447.8	7.39	4.37	80.7	426.8	4.72	0.58	19.8	56.1	0.10
0010	0010	4.29	82.7	226.7	0.87	2.49	88.7	233.7	1.16	2.92	50.6	157.1	0.25	0.54	10.0	25.4	0.01
0075	0083	2.21	15.5	674.9	8.50	2.09	13.2	567.3	8.10	1.50	8.1	526.4	3.58	0.20	3.4	124.2	0.15
0088	0096	1.85	17.4	438.4	5.92	1.96	13.1	417.7	5.99	1.66	11.2	376.7	4.95	0.46	4.0	124.8	1.07
0099	0107	2.80	60.6	534.3	2.32	3.16	65.0	508.2	2.46	2.30	61.5	567.3	1.37	0.23	4.4	162.1	0.25
0099	0111R	3.37	70.1	574.3	3.47	3.55	75.2	514.4	3.68	2.42	59.2	538.3	1.45	0.18	2.1	162.4	0.22
0103	0112	4.99	6.7	244.2	3.07	6.23	6.8	241.8	3.37	10.55	4.8	247.9	2.20	3.43	1.2	74.8	0.71
0123	0133	2.58	31.3	478.6	5.91	2.40	22.9	453.7	6.21	2.04	21.6	395.2	3.57	0.35	10.8	76.0	0.06
0014	0014	5.46	69.1	398.6	4.16	4.32	76.1	395.0	2.22	3.91	51.8	384.0	1.94	0.76	28.6	52.7	0.01
0052	0057	3.29	44.3	669.6	8.65	3.41	53.7	580.2	8.34	3.77	70.1	516.8	4.51	1.14	24.7	169.4	1.84
0080	0088	2.23	24.2	642.3	9.26	2.83	45.7	629.6	10.32	2.20	12.2	634.6	6.81	0.25	0.4	110.3	0.10
0016	0016	3.70	23.2	538.8	9.21	3.44	21.2	491.7	9.67	3.83	35.6	452.1	5.44	0.60	18.9	65.3	0.09
0016	0019R	3.25	31.2	514.8	10.86	3.21	31.2	484.5	10.96	2.55	28.4	435.6	6.46	0.65	15.5	77.2	0.16
0040	0044	3.57	24.0	611.3	9.57	3.87	20.7	543.7	10.16	4.18	25.2	517.9	8.03	0.52	10.9	81.2	0.05
0046	0051	3.03	35.4	646.9	7.65	3.11	33.3	583.3	7.71	2.97	40.5	548.6	4.07	0.70	16.5	113.9	0.08
0096	0104	2.25	15.0	482.3	6.45	2.48	26.4	447.7	6.56	2.49	23.4	466.0	4.07	0.49	12.9	99.4	0.05
0082	0090	5.16	75.1	758.3	4.19	4.64	88.3	624.0	3.80	5.69	111.6	626.4	1.76	1.96	38.4	217.1	0.53
0136	0146	3.16	32.9	353.2	6.24	2.57	32.6	347.8	6.60	2.80	11.2	360.4	5.49	0.29	0.6	48.0	0.03
0149	0159	4.07	15.9	532.7	7.27	3.89	26.9	510.1	7.74	4.45	22.5	422.2	4.17	1.16	13.1	83.8	0.10
0044	0049	3.05	11.2	492.5	3.60	3.20	9.8	478.3	3.86	3.50	17.7	454.8	1.45	1.62	7.7	60.2	0.04
0045	0050	4.32	51.1	441.5	4.97	4.16	49.6	438.1	5.22	4.05	75.1	349.9	2.08	0.58	20.2	52.9	0.02
0053	0058	3.23	34.5	702.0	4.49	3.58	46.9	613.4	4.61	3.65	60.1	548.7	1.42	0.94	20.1	100.3	0.05
0053	0061R	2.65	22.2	702.0	4.90	2.90	23.3	595.0	5.17	3.48	64.2	508.1	1.65	0.92	17.7	106.2	0.12
0001	0001	3.92	52.2	335.7	3.22	3.60	49.8	331.6	3.26	5.11	70.1	318.5	2.48	1.13	27.3	45.9	0.02
0022	0023	5.77	43.5	446.6	7.03	5.30	62.3	428.8	7.29	5.06	73.2	346.9	3.68	1.30	27.8	63.2	0.16
0047	0052	31.01	80.9	587.4	5.13	35.64	95.5	535.1	5.54	28.04	111.6	389.1	1.00	6.54	14.3	117.5	0.13
0091	0099	5.10	74.1	302.3	2.72	4.07	31.2	320.7	2.78	4.66	89.6	435.9	0.84	0.73	16.7	31.0	0.05
0021	0022	2.85	35.7	695.8	7.33	3.25	42.1	596.3	6.76	3.33	41.0	498.6	3.52	0.76	9.6	111.1	0.26
0058	0064	4.83	60.8	428.3	4.54	4.31	59.9	420.1	5.68	3.72	43.3	435.9	4.05	0.31	5.3	79.3	0.04
0079	0087	5.63	18.6	230.6	2.64	6.92	36.3	342.7	4.45	10.26	15.5	268.5	2.11	5.00	0.3	36.2	0.12

CAR#	RUN#	ACCEL/DECEL HC	ACCEL/DECEL CO	ACCEL/DECEL CO2	ACCEL/DECEL NOX	ACCEL/DECEL CALCULATED HC	ACCEL/DECEL CALCULATED CO	ACCEL/DECEL CALCULATED CO2	ACCEL/DECEL CALCULATED NOX	SHORT CYCLE HC	SHORT CYCLE CO	SHORT CYCLE CO2	SHORT CYCLE NOX	STEADY STATE-IDLE HC	STEADY STATE-IDLE CO	STEADY STATE-IDLE CO2	STEADY STATE-IDLE NOX
0095	0103	5.79	78.6	322.2	1.80	5.38	89.9	311.6	1.82	6.83	92.8	298.7	0.44	2.07	34.3	98.0	0.11
0032	0035	6.86	72.1	380.6	4.42	6.35	90.4	398.8	4.92	7.70	93.8	353.0	2.83	1.75	32.2	71.6	0.04
0067	0073	4.78	72.4	359.1	3.97	4.46	90.6	380.0	4.02	4.21	67.8	276.6	1.43	0.48	0.7	42.8	0.10
0008	0008	6.50	43.3	563.5	5.72	5.16	74.0	497.9	5.75	8.84	69.0	375.2	1.80	1.96	26.0	54.3	0.04
0034	0037	20.15	50.1	502.2	3.76	20.36	65.4	476.7	4.32	17.74	91.1	391.7	1.22	4.50	20.1	82.8	0.15
0146	0156	8.54	34.7	457.7	9.38	7.79	60.2	472.6	10.61	10.88	69.2	381.2	5.08	1.45	14.6	39.8	0.16
0170	0180	6.43	60.2	499.4	3.92	6.06	75.2	462.6	4.33	6.58	72.6	435.5	1.80	2.72	34.4	64.5	0.23
0009	0009	6.11	79.3	676.9	2.08	5.12	87.3	586.1	2.03	8.51	75.8	582.3	1.51	2.02	20.2	65.9	0.04
0100	0108	5.04	50.1	271.4	1.65	3.85	71.9	274.6	1.87	6.30	70.8	250.1	0.74	0.99	16.2	27.1	0.03
0036	0039	5.76	44.8	457.1	5.25	4.74	55.7	451.4	5.40	5.18	58.2	384.9	2.94	0.51	14.6	57.0	0.04
0167	0177	4.38	39.6	399.7	6.48	4.17	59.9	397.7	7.16	4.92	56.9	379.3	4.72	1.10	13.2	44.2	0.06
0157	0167	2.39	28.0	535.5	4.37	3.02	40.9	516.0	3.95	2.59	21.1	484.4	2.87	0.52	4.3	97.2	0.22
0039	0042	2.93	59.9	429.9	4.50	3.11	66.4	439.3	4.77	3.08	45.3	376.4	3.29	0.65	13.1	93.3	0.27
0039	0046R	3.27	60.5	440.2	4.41	3.41	77.7	443.2	4.43	11.39	148.3	281.2	2.28	0.73	13.4	85.3	0.24
0018	0018	4.08	62.7	710.7	10.84	2.69	49.3	622.1	8.52	2.72	53.2	593.2	6.62	0.55	18.6	110.4	0.05
0114	0124	5.14	73.5	740.6	7.50	4.93	86.0	670.0	7.28	4.68	79.8	526.2	1.98	0.83	5.7	99.4	0.12
0051	0056	2.73	23.9	765.6	9.18	2.89	24.8	676.5	9.08	2.61	28.3	694.0	4.76	0.73	27.6	113.9	0.09
0140	0150	2.31	20.1	707.1	8.89	3.43	16.8	602.8	10.30	1.90	20.5	540.8	4.80	0.35	7.6	136.6	0.09
0002	0002	3.00	28.6	598.5	3.98	2.23	33.6	537.6	4.20	1.37	20.4	680.9	1.79	0.39	8.0	87.9	0.07
0020	0021	3.26	30.9	536.9	9.92	3.29	41.6	490.7	10.61	2.87	35.0	434.8	6.17	0.54	20.2	78.0	0.36
0083	0091	7.60	39.1	402.4	5.60	6.84	56.6	357.3	4.76	8.09	65.3	286.4	2.12	2.14	21.2	118.0	0.80
0151	0161	3.22	28.3	600.6	9.31	3.59	16.0	526.4	8.70	2.52	21.2	470.6	4.39	0.25	3.8	101.1	0.12
0062	0068	3.21	54.7	698.1	3.48	2.77	35.9	593.2	3.75	2.43	53.5	546.4	1.57	0.69	28.0	68.3	0.03
0120	0130	2.47	36.1	740.6	6.57	2.45	71.5	658.2	6.57	3.49	47.2	536.0	3.34	1.14	24.9	92.6	0.04
0128	0138	2.38	13.3	770.9	6.74	2.13	11.2	607.3	5.56	2.02	19.9	1112.7	5.94	0.42	1.7	118.8	0.10
0064	0070	4.03	45.5	613.9	8.38	4.04	29.3	550.9	8.82	2.87	43.8	472.5	3.85	0.63	16.7	83.3	0.04
0065	0072	4.27	34.3	507.2	8.37	4.15	30.9	500.1	7.37	3.61	41.8	432.6	3.32	0.66	15.0	94.0	0.07
0073	0079	3.02	41.9	720.3	3.80	2.81	30.5	628.1	4.32	2.99	8.1	570.5	3.36	0.40	0.6	112.7	0.05
0027	0029	4.09	24.6	555.3	8.41	3.33	42.8	508.5	9.24	3.78	23.3	439.6	4.79	0.72	8.4	75.6	0.06
0074	0080	6.12	50.6	632.5	5.74	5.24	69.1	526.6	5.48	6.98	73.5	448.3	2.19	1.48	9.5	55.6	0.02
0019	0020	5.35	57.7	411.0	4.65	5.32	70.4	408.2	5.60	5.43	55.7	382.9	3.53	1.02	15.9	49.0	0.07
0071	0077	7.85	84.1	556.5	6.96	6.89	100.0	502.0	6.78	8.47	86.6	342.4	2.69	3.98	31.3	34.1	0.03
0071	0081R	8.07	91.3	523.9	6.41	6.84	104.9	492.5	6.73	9.93	95.2	422.0	3.90	3.68	30.4	35.8	0.04
0148	0158	4.68	67.5	751.4	10.83	4.32	82.5	635.4	10.46	6.14	87.0	547.6	5.36	2.15	29.7	154.5	0.16
0070	0076	4.12	44.6	470.8	5.05	3.85	38.1	403.0	4.27	4.23	62.4	383.0	1.85	1.08	16.3	146.6	0.71
0076	0084	3.47	12.9	646.4	6.92	3.56	14.8	527.1	7.42	3.05	21.5	464.5	1.07	0.26	1.2	100.8	0.11
0115	0125	18.99	114.4	397.9	5.00	18.55	122.5	382.6	4.72	32.09	167.8	274.0	3.26	21.60	35.5	31.0	0.01
0102	0110	3.27	49.0	481.6	4.25	3.65	59.6	443.8	4.52	2.84	47.4	403.7	2.91	0.49	15.4	63.2	0.02
0144	0154	13.37	193.4	459.3	4.85	12.94	194.6	455.7	3.71	17.78	228.3	300.8	0.93	6.75	72.0	63.2	0.01
0156	0166	3.91	48.0	368.9	7.23	2.80	65.3	357.3	7.66	3.99	66.0	362.6	4.31	0.73	13.2	32.5	0.02
0048	0053	4.55	62.3	487.2	3.52	3.65	73.9	462.6	3.88	4.41	87.2	315.0	1.33	0.89	20.0	39.6	0.04
0061	0067	4.78	44.7	622.3	6.10	6.50	46.8	564.3	6.66	4.86	60.1	517.6	3.73	0.74	16.0	134.0	0.03
0121	0131	8.08	95.9	458.8	2.59	8.41	110.9	449.3	2.98	11.01	78.9	398.0	2.39	4.21	28.5	80.0	0.09
0113	0123	3.56	80.4	418.6	4.40	3.26	94.0	405.2	4.59	3.36	74.5	283.7	1.79	0.44	14.6	41.9	0.07
0127	0137	2.60	14.6	721.5	6.60	2.55	11.8	352.2	5.72	2.42	30.1	563.8	2.10	0.39	2.2	130.8	0.19
0164	0174	3.21	32.9	698.8	9.10	3.56	50.9	570.5	8.72	3.90	38.0	550.7	5.15	0.68	19.3	76.5	0.02
0134	0144	3.79	59.6	657.6	4.25	3.29	54.1	594.9	4.62	3.54	75.0	482.8	1.91	1.16	31.1	74.9	0.02
0129	0139	3.37	47.5	676.3	7.39	3.57	57.3	597.6	8.10	3.73	51.2	518.0	4.74	0.73	13.5	102.0	0.13
0154	0164	4.09	60.7	565.5	6.95	4.01	69.1	540.8	7.28	4.13	60.4	532.8	4.18	1.16	19.8	167.9	0.14
0004	0006	2.47	18.8	563.5	6.23	2.11	17.6	504.9	6.26	1.50	20.4	535.4	2.15	0.35	4.0	94.8	0.01

		ACCEL/DECEL				ACCEL/DECEL CALCULATED				SHORT CYCLE				STEADY STATE-IDLE			
CAR#	RUN#	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX
0110	0119	25.92	172.1	501.6	3.22	24.92	193.6	473.4	3.10	47.21	267.1	393.4	0.94	24.22	65.4	58.4	0.05
0031	0034	7.92	79.4	436.1	5.95	6.19	93.9	422.9	5.96	8.17	92.8	371.0	3.00	1.86	25.9	59.2	0.01
0094	0102	5.20	74.2	474.2	2.51	5.41	88.1	445.4	2.51	5.31	68.8	411.1	1.66	1.31	14.7	80.6	0.04
0130	0140	4.72	64.9	514.2	4.14	4.18	69.4	490.3	4.29	5.28	33.7	442.1	2.83	1.36	1.0	77.6	0.07
0132	0142	4.87	69.4	576.5	4.50	4.54	74.8	515.2	4.60	5.31	47.2	484.6	3.07	0.89	1.9	148.4	0.05
0162	0172	4.47	107.2	461.1	3.43	4.42	122.2	451.8	3.63	4.41	75.5	464.3	3.58	0.70	23.2	84.8	0.02
0139	0149	2.93	38.8	448.0	6.29	2.69	49.1	454.2	6.19	2.77	33.8	390.9	3.65	0.65	10.2	67.4	0.10
0049	0054	5.67	70.0	348.2	3.83	4.66	62.1	338.6	4.10	5.19	55.3	244.7	1.59	0.74	15.2	23.7	0.01
0033	0036	5.51	107.1	282.8	1.16	5.15	115.5	290.5	1.69	3.94	67.0	292.0	1.13	0.60	5.9	52.9	0.08
0161	0171	4.76	86.7	325.1	1.84	4.06	89.4	306.1	1.75	3.95	47.7	318.3	2.77	0.53	4.0	29.2	0.03
0165	0175	3.78	73.0	364.3	4.66	3.07	66.2	296.0	4.16	4.47	52.5	343.2	3.65	1.17	8.5	54.0	0.07
0119	0129	2.16	26.9	240.0	3.00	1.74	18.7	238.3	3.30	0.93	11.9	276.1	1.88	0.08	3.8	35.2	0.01
0077	0085	1.57	18.9	292.1	6.52	1.86	14.9	307.4	6.82	2.59	14.6	241.4	4.56	0.31	4.9	86.2	0.21
0101	0109	3.10	25.8	259.3	2.84	2.40	38.0	259.0	3.19	1.66	25.3	316.3	1.74	0.82	10.1	26.2	0.02
0093	0101	2.16	22.9	170.7	2.98	2.18	34.0	163.9	3.48	2.12	24.4	188.5	3.21	0.56	7.7	14.1	0.01
0026	0028	2.34	29.4	242.0	4.08	2.71	42.7	242.6	4.60	1.62	26.3	230.9	2.24	0.35	7.3	39.8	0.09
0026	0030R	2.49	33.5	254.8	4.15	2.23	45.5	255.6	4.40	1.47	25.5	265.2	2.32	0.24	7.6	41.3	0.03
0124	0134	3.38	41.5	277.7	2.07	2.69	56.1	267.6	2.47	3.20	47.7	294.9	1.22	1.24	20.8	92.0	0.27
0111	0120	4.10	70.7	222.3	2.07	3.58	65.3	203.0	2.22	3.74	98.1	214.9	0.78	1.06	14.7	20.2	0.01
0138	0148	5.73	59.1	228.9	2.17	3.80	72.4	223.4	2.40	5.00	87.0	232.0	0.92	1.01	32.4	18.7	0.02
0133	0143	5.11	42.7	244.1	3.54	3.35	52.4	233.1	3.51	6.22	56.1	248.4	1.95	3.24	18.0	17.3	0.01
0025	0027	2.36	31.7	279.9	3.04	2.17	37.4	206.6	1.55	2.87	32.6	230.0	2.43	0.17	3.1	24.4	0.04
0017	0017	4.05	48.6	296.5	4.24	3.29	54.2	282.9	4.65	2.72	53.6	248.4	2.32	0.56	3.6	46.7	0.26
0092	0100	24.06	41.6	104.4	0.63	20.92	57.7	102.1	0.62	23.83	52.3	105.6	0.65	3.68	10.5	10.8	0.01
0056	0062	1.31	23.1	325.8	4.51	1.30	19.3	319.7	4.60	1.15	25.6	240.7	1.79	0.19	11.8	30.0	0.01
0171	0181	1.68	13.5	306.9	7.15	1.72	17.3	314.2	7.78	1.07	11.0	259.2	3.30	0.12	1.5	41.0	0.36
0068	0074	1.45	7.7	328.2	8.95	1.34	9.6	328.9	8.70	1.37	21.2	257.2	3.41	0.20	8.4	34.2	0.04
0085	0093	2.89	35.7	331.0	8.74	3.30	37.7	301.9	7.38	2.27	15.7	293.0	6.09	1.30	10.5	113.1	1.88
0069	0075	1.37	28.5	349.8	5.56	1.86	25.8	319.6	5.51	1.33	21.0	301.5	4.03	0.15	6.3	38.3	0.04

CAR#	RUN#	ACCEL/DECEL HC	ACCEL/DECEL CO	ACCEL/DECEL CO2	ACCEL/DECEL NOX	ACCEL/DECEL CALCULATED HC	ACCEL/DECEL CALCULATED CO	ACCEL/DECEL CALCULATED CO2	ACCEL/DECEL CALCULATED NOX	SHORT CYCLE HC	SHORT CYCLE CO	SHORT CYCLE CO2	SHORT CYCLE NOX	STEADY STATE-IDLE HC	STEADY STATE-IDLE CO	STEADY STATE-IDLE CO2	STEADY STATE-IDLE NOX
0066	0066	3.17	58.2	584.4	5.83	2.84	61.3	547.5	6.14	3.04	78.2	973.6	2.61	0.73	25.3	96.4	0.07
0064	0064	2.92	20.1	447.0	6.83	2.61	15.3	478.5	3.11	3.22	23.1	481.2	3.60	0.85	4.6	96.9	0.10
0029	0029	8.40	50.8	522.2	10.94	7.67	40.8	503.5	11.93	6.87	53.9	402.0	4.83	2.11	22.4	81.9	0.08
0065	0065	4.63	61.8	431.3	5.55	4.14	61.0	415.6	5.78	5.44	87.1	341.4	2.02	1.06	11.4	64.4	0.07
0150	0156	5.09	93.1	365.0	2.42	3.84	90.7	361.9	3.73	4.60	81.5	309.9	1.87	0.78	29.5	62.3	0.04
0048	0048	3.91	69.1	368.2	2.77	3.64	60.8	377.0	3.19	4.31	42.2	313.6	2.49	1.47	7.2	48.3	0.03
0056	0056	8.03	33.2	457.8	9.21	6.26	46.8	468.3	10.54	9.71	72.2	367.3	4.29	3.20	26.1	30.2	0.05
0024	0024	8.55	98.7	465.1	3.30	7.36	104.4	419.4	3.25	11.24	110.7	385.1	1.98	1.31	18.2	64.1	0.03
0134	0134	8.24	86.4	444.7	4.54	6.50	86.0	438.2	4.86	12.08	102.3	351.9	2.35	1.37	29.2	53.0	0.03
0128	0133	7.78	165.2	445.1	0.82	6.85	174.8	454.6	0.97	6.13	185.3	340.8	0.53	1.26	30.3	71.9	0.04
0135	0141	1.16	45.8	674.3	4.34	1.16	35.9	633.7	5.13	0.86	35.3	600.5	1.51	0.24	8.4	180.2	0.11
0113	0113	5.24	98.6	478.7	3.61	4.98	106.6	498.3	3.55	4.34	101.1	374.2	1.52	0.83	27.9	71.4	0.04
0113	01132	6.44	84.9	435.7	2.04	6.05	94.8	428.3	2.17	4.98	132.1	387.1	1.23	0.72	19.4	67.8	0.04
0110	0110	3.83	97.6	487.6	3.13	3.72	97.9	462.2	3.58	3.45	87.2	447.2	1.86	0.61	14.3	93.1	0.10
0003	0003	1.77	14.7	574.2	6.11	1.63	17.8	543.3	6.34	2.36	20.8	548.9	3.25	0.44	2.7	111.6	0.16
0004	0004	5.06	100.3	459.3	4.14	4.24	74.2	453.1	4.18	7.42	124.1	378.8	1.71	1.33	37.6	69.8	0.04
0055	0055	1.56	18.1	311.7	6.80	1.24	15.9	306.9	7.44	1.74	15.2	266.7	4.88	0.27	2.2	44.0	0.26
0077	0077	2.15	20.3	300.8	4.70	1.84	26.6	293.8	4.50	3.04	20.9	295.7	2.56	0.17	1.7	44.1	0.06
0105	0105	1.66	19.9	559.5	8.59	1.75	23.6	540.8	9.23	1.62	8.0	493.8	6.17	0.34	2.5	111.1	0.27
0028	0028	2.07	30.1	459.6	8.67	1.99	24.4	414.3	9.06	1.91	43.1	439.2	11.27	0.68	29.2	93.1	0.05
0084	0084	3.68	40.4	433.4	7.25	3.32	37.8	469.5	9.24	4.45	57.9	395.3	5.19	1.14	31.2	87.9	0.26
0120	0123	3.50	60.5	429.3	4.60	2.96	40.0	424.3	5.34	3.26	14.7	341.5	2.35	0.40	9.0	89.9	0.03
0140	0146	3.27	14.1	522.5	8.83	2.90	19.6	493.3	8.49	3.80	17.7	447.8	4.09	0.71	5.7	74.0	0.07
0007	0007	3.63	38.9	482.7	5.23	3.18	29.9	472.7	4.57	3.26	21.7	436.8	4.01	0.70	14.9	77.0	0.21
0073	0073	2.31	10.2	484.5	7.29	2.23	13.6	455.1	7.46	1.88	9.5	455.6	4.21	0.23	4.9	92.4	0.05
0086	0086	5.60	46.2	432.8	7.68	4.47	47.1	434.3	8.40	6.93	76.9	356.5	3.38	2.16	28.3	38.5	0.22
0089	0089	4.18	24.9	547.7	6.61	3.04	24.3	486.0	6.65	3.32	33.1	521.7	3.71	0.62	13.5	109.2	0.05
0087	0087	5.72	61.5	402.7	4.59	5.12	58.2	407.3	4.86	8.04	86.5	320.4	1.96	1.60	30.0	78.8	0.08
0103	0103	1.51	11.5	303.3	5.68	1.43	12.9	302.4	5.89	1.22	6.6	259.1	3.17	0.81	4.9	72.5	0.08
0131	0135	4.05	53.9	423.0	5.21	4.09	30.3	431.5	5.70	4.83	43.3	401.3	3.01	1.49	12.9	68.1	0.08
0067	0067	4.59	60.6	464.3	5.85	4.30	51.4	451.7	6.15	4.94	59.8	356.5	3.37	1.00	16.1	66.4	0.07
0035	0035	7.50	56.0	407.5	6.06	6.45	50.8	435.3	6.71	9.53	79.9	350.7	3.65	2.73	21.4	68.6	0.07
0095	0095	7.66	68.7	406.7	4.99	6.86	64.7	433.5	4.71	8.59	96.9	356.9	1.71	1.28	14.1	69.5	0.06
0014	0014	7.86	92.1	403.3	2.71	6.73	78.2	390.0	2.77	8.49	94.7	414.6	2.26	1.65	19.9	57.8	0.06
0068	0068	9.44	85.3	405.0	3.33	7.84	76.8	392.7	3.59	10.74	94.9	420.3	2.47	2.92	27.3	71.3	0.05
0141	0147	6.87	58.9	478.7	4.91	5.86	51.7	464.5	7.34	6.36	45.6	384.3	3.51	1.40	25.2	47.5	0.02
0006	0006	8.52	110.4	422.1	2.57	6.96	104.9	466.0	2.75	8.35	95.3	451.5	2.36	1.41	4.6	80.1	0.09
0054	0054	7.54	92.3	365.9	4.32	6.90	90.4	356.3	4.49	9.81	125.0	305.3	1.92	2.24	39.0	43.9	0.03
0072	0072	17.06	99.1	402.7	4.09	13.81	90.3	407.5	3.95	19.60	101.0	317.3	2.57	4.44	34.9	33.2	0.03
0018	0018	5.53	59.6	424.4	4.25	4.79	48.2	410.9	3.81	5.19	46.1	375.0	2.44	1.44	5.3	65.3	0.04
0070	0070	27.46	72.0	376.3	3.96	28.05	61.1	378.3	4.57	25.12	58.7	328.9	3.42	3.59	4.0	44.8	0.04
0092	0092	4.34	44.3	384.0	4.35	4.13	41.3	378.4	5.08	5.24	57.1	266.3	2.36	1.15	11.3	28.9	0.01
0063	0063	5.90	74.3	285.8	3.04	5.40	74.1	283.0	2.85	6.63	58.8	278.3	3.03	2.54	16.6	24.8	0.06
0102	0102	4.34	62.8	274.9	1.71	3.89	55.2	271.2	2.38	3.50	47.6	227.9	1.04	0.93	22.2	48.9	0.04
0107	0107	5.08	54.7	302.5	2.50	3.99	48.2	330.2	3.43	5.33	65.7	301.7	1.73	1.06	13.6	27.1	0.02
0116	0116	31.27	110.2	285.7	1.04	25.12	91.7	297.6	1.24	5.63	95.7	266.1	0.43	0.72	4.9	43.3	0.05
0008	0008	8.85	133.9	402.5	2.46	6.71	159.6	407.3	2.33	7.60	100.4	273.6	0.84	1.68	18.4	36.6	0.01
0057	0057	9.23	78.4	313.6	3.22	7.23	74.1	322.3	4.06	7.66	63.2	282.6	3.43	2.16	25.1	34.0	0.03
0039	0039	2.71	33.1	414.5	5.56	2.89	29.0	413.6	6.10	2.72	23.4	474.9	4.43	0.79	13.3	55.7	0.03
0045	0045	2.49	25.4	436.0	7.25	2.15	23.5	435.2	7.54	2.69	7.2	379.7	5.71	0.46	1.6	70.1	0.19

CAR#	RUN#	ACCEL/DECEL HC	ACCEL/DECEL CO	ACCEL/DECEL CO2	ACCEL/DECEL NOX	ACCEL/DECEL CALCULATED HC	ACCEL/DECEL CALCULATED CO	ACCEL/DECEL CALCULATED CO2	ACCEL/DECEL CALCULATED NOX	SHORT CYCLE HC	SHORT CYCLE CO	SHORT CYCLE CO2	SHORT CYCLE NOX	STEADY STATE-IDLE HC	STEADY STATE-IDLE CO	STEADY STATE-IDLE CO2	STEADY STATE-IDLE NOX
0071	0071	4.36	30.8	420.4	4.75	3.53	23.7	413.9	4.44	4.72	22.0	378.3	2.38	1.01	16.7	33.9	0.02
0115	0115	22.05	142.9	388.7	1.41	21.10	159.1	388.6	1.62	22.61	534.3	954.5	1.46	9.09	43.8	51.5	0.04
0164	0171	3.96	33.2	396.0	4.30	2.81	26.3	359.9	3.76	3.62	22.5	370.3	2.51	0.55	15.0	49.3	0.02
0127	0132	4.35	38.9	392.4	5.66	3.40	40.8	385.2	5.66	3.57	32.9	250.4	2.57	1.21	17.7	39.0	0.03
0154	0161	3.49	65.7	460.7	2.00	3.12	58.1	439.8	1.90	3.36	69.3	402.3	0.97	0.56	13.7	65.4	0.05
0020	0020	3.62	55.9	577.9	6.37	3.02	46.8	517.7	6.39	2.80	36.6	517.2	4.72	0.46	14.3	101.8	0.05
0042	0042	4.49	55.1	450.5	4.30	4.37	62.2	252.3	4.69	3.44	52.6	437.4	3.45	0.55	14.4	64.3	0.14
0169	0177	4.94	89.4	492.2	3.73	4.03	78.9	458.1	3.80	4.68	75.6	443.7	3.66	0.88	27.2	66.9	0.06
0075	0075	4.77	138.1	544.2	1.30	4.52	147.2	530.5	1.26	4.45	112.3	510.1	0.96	1.10	31.3	87.8	0.07
0081	0081	2.07	20.4	451.8	4.70	1.87	28.9	453.6	4.90	1.69	16.0	403.3	2.51	0.39	6.6	95.0	0.06
0076	0076	2.35	24.3	517.2	6.24	2.05	20.8	503.4	5.94	2.00	30.4	453.1	2.79	0.78	16.2	107.2	0.08
0083	0083	3.33	52.4	431.7	4.47	3.20	44.7	449.7	4.81	3.28	38.8	421.8	3.00	0.69	6.7	89.2	0.08
0117	0117	3.17	26.8	472.9	7.24	3.05	28.5	479.7	8.87	3.24	31.5	455.4	5.11	0.43	2.2	76.2	0.07
0117	0125R	3.47	34.7	503.2	7.77	3.18	33.2	439.4	8.68	2.88	33.5	370.3	3.81	0.45	2.8	83.5	0.06
0139	0145	4.66	94.4	581.1	1.97	4.07	105.3	571.5	1.93	4.79	90.1	471.1	0.86	1.05	18.0	96.0	0.04
0133	0138	2.86	32.3	408.0	5.77	1.96	47.5	427.0	6.24	1.98	24.1	329.0	3.30	0.35	5.4	79.9	0.06
0145	0151	5.43	62.4	409.2	4.01	4.76	58.9	407.5	4.46	5.21	84.7	343.6	3.01	1.63	25.2	79.9	0.06
0123	0127	7.17	58.4	285.2	4.01	5.29	52.9	308.1	4.58	8.53	81.3	235.1	1.93	2.37	21.0	36.1	0.07
0033	0033	7.65	98.8	304.4	1.08	5.50	86.4	301.2	1.36	7.56	87.4	266.7	0.97	0.85	9.9	31.1	0.02
0047	0047	4.91	26.7	483.4	5.42	4.86	23.2	489.0	5.88	6.16	23.6	425.0	2.15	3.63	9.1	64.9	0.06
0147	0153	7.64	111.3	375.0	0.99	5.71	107.0	380.9	1.03	7.39	103.8	388.7	0.76	0.93	24.1	45.0	0.03
0111	0111	23.83	37.4	467.8	8.64	22.03	29.4	468.8	9.44	20.01	36.7	347.3	5.97	3.62	9.7	47.9	0.07
0111	0122R	22.56	32.3	460.7	8.14	23.19	30.8	451.8	9.04	20.86	41.4	379.2	6.18	4.94	7.9	42.2	0.10
0021	0021	2.50	16.6	603.2	10.04	2.11	14.4	553.2	9.61	2.03	18.9	545.5	12.05	0.48	2.9	142.2	0.25
0027	0027	1.56	21.0	199.6	3.61	2.65	33.1	291.1	6.97	3.00	3.1	309.8	5.21	0.53	22.3	38.9	0.02
0040	0040	1.88	12.8	621.2	8.23	1.91	12.9	582.9	7.31	1.61	9.6	550.8	5.57	0.31	4.0	128.3	0.12
0052	0052	1.84	14.0	407.9	2.71	1.87	14.9	418.1	6.23	2.00	17.7	365.2	6.22	0.42	3.8	92.3	0.28
0079	0079	5.12	23.6	585.8	6.23	5.70	23.1	584.7	8.50	5.45	27.5	393.0	4.01	1.87	20.9	73.7	0.49
0002	0002	2.77	14.2	293.1	4.42	2.24	12.3	281.9	4.52	1.98	3.1	321.7	3.34	0.18	0.3	53.9	0.03
0010	0010	1.97	23.5	411.2	7.08	1.71	18.7	394.7	7.11	1.88	23.2	354.2	4.47	0.35	11.0	58.5	0.06
0013	0013	2.99	43.0	556.0	7.10	2.46	47.9	538.9	6.65	2.97	48.4	491.7	3.70	0.83	26.1	99.3	0.15
0032	0032	3.16	23.9	498.8	9.95	2.90	25.8	522.4	10.03	2.15	2.2	505.6	2.77	0.73	26.1	69.7	0.07
0058	0058	2.17	24.3	387.2	8.96	2.11	22.1	384.9	9.21	1.96	20.3	347.3	5.98	0.39	6.6	61.0	0.09
0119	0121	2.71	9.9	437.5	9.38	2.73	10.5	430.9	10.54	2.55	15.8	329.5	4.96	0.63	6.4	84.4	0.12
0060	0060	2.79	10.2	455.6	7.26	2.64	10.6	451.7	7.46	2.63	15.1	421.4	3.52	0.47	14.7	95.0	0.06
0094	0094	2.08	14.7	328.2	6.86	1.99	16.6	318.7	7.25	1.90	10.3	343.2	4.46	0.30	3.7	55.8	0.07
0114	0114	2.05	21.7	601.2	5.65	1.95	21.7	564.4	6.01	1.86	19.3	571.9	2.75	0.48	4.5	114.6	0.17
0114	0120R	2.07	25.4	562.4	4.92	2.36	35.3	543.0	5.69	2.40	41.1	509.4	2.10	0.57	9.7	117.4	0.09
0121	0124	4.46	58.9	435.7	5.06	3.86	40.6	421.4	4.21	4.72	50.3	391.9	3.40	0.65	14.9	62.1	0.15
0121	0130R	4.18	61.3	390.0	3.84	3.71	47.8	410.1	4.67	4.23	63.6	367.1	2.69	0.73	15.5	146.3	0.45
0001	0001	4.15	50.2	503.5	4.74	3.53	38.0	520.5	5.39	4.27	71.0	518.0	2.40	0.97	27.2	72.6	0.05
0046	0046	2.74	25.7	388.0	6.54	2.61	22.4	380.9	6.53	3.44	28.3	345.3	4.58	0.68	9.9	53.2	0.09
0097	0097	3.24	22.5	284.5	4.32	2.67	17.6	304.6	4.45	5.14	23.2	272.7	2.53	0.73	1.9	49.7	0.04
0136	0142	3.94	59.9	371.2	2.35	3.50	68.0	356.5	2.54	3.17	30.9	359.0	2.00	0.46	4.5	66.1	0.04
0037	0037	5.22	34.6	315.2	5.06	4.54	28.8	297.5	5.23	6.61	29.8	209.3	4.26	1.74	7.8	48.2	0.03
0050	0050	4.12	59.5	200.3	3.40	3.82	48.8	278.5	3.71	3.99	41.9	254.0	2.26	0.53	4.4	42.4	0.04
0100	0100	2.95	26.9	349.2	4.34	2.98	24.0	368.6	4.77	3.00	29.5	371.4	4.31	0.40	3.9	75.2	0.08
0069	0069	5.19	56.3	449.0	7.00	4.25	90.0	447.1	6.99	5.49	78.3	372.8	3.57	1.32	33.4	58.2	0.05
0093	0093	3.05	49.4	509.5	3.29	2.84	44.3	487.0	3.68	4.15	62.3	472.3	2.11	1.03	22.2	101.0	0.56
0078	0078	9.03	47.4	481.1	6.39	6.55	43.1	391.7	6.44	9.66	77.2	321.0	3.16	2.92	33.5	44.5	0.03

CAR#	RUN#	ACCEL/DECEL HC	ACCEL/DECEL CO	ACCEL/DECEL CO2	ACCEL/DECEL NOX	ACCEL/DECEL CALCULATED HC	ACCEL/DECEL CALCULATED CO	ACCEL/DECEL CALCULATED CO2	ACCEL/DECEL CALCULATED NOX	SHORT CYCLE HC	SHORT CYCLE CO	SHORT CYCLE CO2	SHORT CYCLE NOX	STEADY STATE-IDLE HC	STEADY STATE-IDLE CO	STEADY STATE-IDLE CO2	STEADY STATE-IDLE NOX
0098	0098	5.14	34.5	290.9	3.68	4.12	30.9	316.0	3.87	6.16	38.2	309.7	2.47	1.64	15.7	26.7	0.01
0156	0163	4.79	24.1	440.2	2.96	4.05	65.2	423.3	3.07	5.85	47.7	370.6	2.57	0.92	15.9	48.7	0.04
0011	0011	12.19	97.2	395.6	3.53	9.03	87.7	413.3	3.73	9.29	89.6	340.4	2.34	1.99	34.7	42.2	0.03
0016	0016	14.95	73.5	267.3	3.79	17.38	79.7	261.4	4.04	21.58	106.8	205.5	1.54	10.65	32.6	20.8	0.01
0129	0134	2.71	47.5	296.3	3.45	2.37	43.0	272.7	3.32	2.75	25.1	259.4	3.16	0.40	2.4	25.0	0.09
0144	0150	15.45	57.0	462.7	5.57	15.74	47.7	456.3	6.49	11.41	51.4	333.4	4.66	2.50	21.1	59.7	0.06
0170	0180	4.31	57.1	389.6	3.05	3.64	45.9	293.8	3.21	4.22	54.9	384.1	1.55	1.46	12.7	57.2	0.04
0009	0009	4.13	53.7	393.9	4.60	3.57	45.6	400.6	4.65	4.72	36.5	320.2	3.14	0.95	5.1	31.7	0.04
0044	0044	5.17	61.0	486.3	4.69	4.83	64.5	486.2	5.12	6.18	90.1	436.0	3.34	1.38	32.1	77.0	0.07
0146	0152	5.09	92.9	412.3	3.21	4.41	89.9	394.9	5.15	6.29	105.7	334.8	2.42	2.62	33.9	38.5	0.03
0038	0038	2.24	25.6	582.3	5.94	2.12	23.9	555.9	5.90	2.31	57.3	485.0	2.38	0.75	20.5	129.3	0.15
0155	0162	2.78	28.1	521.3	8.51	2.47	25.0	473.4	8.71	3.01	43.4	458.1	4.34	0.65	21.2	71.2	0.05
0155	0172R	2.58	24.5	519.2	8.85	2.34	27.0	469.4	9.62	2.10	33.8	408.8	3.30	0.32	25.3	84.2	0.07
0034	0034	3.63	20.8	545.3	9.62	3.89	21.5	526.1	10.90	3.69	25.1	512.0	7.68	0.64	10.7	88.5	0.10
0165	0173	2.79	24.1	456.5	8.28	3.22	21.1	448.2	8.79	3.00	12.8	326.2	3.87	0.68	5.3	75.1	0.13
0165	0178R	3.35	21.3	451.4	8.19	3.62	27.6	449.1	9.06	2.72	14.3	319.3	3.86	2.20	5.9	70.8	0.07
0061	0061	3.04	44.6	368.9	6.44	3.56	38.4	408.2	8.04	3.78	79.0	351.6	3.74	0.83	27.2	75.1	0.09
0166	0174	6.43	56.7	545.9	6.04	5.47	43.2	511.5	5.63	7.11	31.6	471.1	3.42	2.21	1.1	74.4	0.07
0166	0179R	6.73	56.8	559.1	6.15	5.70	48.2	503.1	5.92	5.75	25.3	491.3	3.12	3.03	1.1	92.3	0.04
0168	0176	3.56	63.7	590.0	3.80	2.65	62.4	538.8	3.60	4.54	105.7	490.1	1.14	0.67	28.2	70.9	0.05
0112	0112	8.33	207.9	396.7	1.03	6.55	178.9	406.4	1.23	7.42	148.0	325.1	0.64	1.64	8.3	61.0	0.05
0091	0091	2.50	54.9	183.7	1.72	2.15	43.0	295.4	1.98	2.43	28.9	251.2	1.90	0.53	4.3	37.8	0.05
0160	0167	1.81	23.8	301.4	5.92	1.60	23.9	293.4	5.70	1.55	11.1	229.2	4.80	0.83	8.1	46.4	0.10
0017	0017	2.50	54.2	537.6	5.21	2.40	69.5	510.3	4.66	2.40	64.7	489.7	3.56	0.52	21.4	114.7	0.06
0030	0030	2.95	60.7	526.6	4.09	2.89	61.9	490.1	3.95	2.56	71.4	476.5	1.99	0.61	18.6	95.4	0.06
0109	0109	2.22	25.2	465.2	5.43	1.81	22.1	495.4	5.80	1.59	27.2	445.7	1.32	0.48	11.5	81.7	0.07
0053	0053	2.46	24.4	536.9	10.92	2.16	30.5	503.6	11.89	4.39	62.4	483.6	5.71	0.84	30.7	76.7	0.09
0080	0080	5.46	73.7	493.6	5.88	5.12	77.6	490.5	6.27	5.27	105.3	410.5	2.59	1.45	48.5	74.6	0.06
0019	0019	8.67	72.1	453.7	4.23	7.19	79.8	421.8	4.26	12.12	116.3	389.4	1.59	3.61	42.4	67.3	0.03
0022	0022	3.89	45.8	450.8	5.85	3.02	33.9	429.5	6.01	4.13	47.8	382.7	3.35	0.88	14.9	73.5	0.05
0099	0099	9.04	74.6	381.3	2.90	7.27	85.4	408.6	2.52	10.79	102.5	461.6	1.82	5.07	24.6	42.1	0.03
0161	0168	8.69	69.4	500.2	5.93	7.03	67.2	469.5	6.19	8.33	89.8	323.6	1.58	2.08	25.2	44.8	0.03
0137	0143	7.60	71.3	467.4	4.53	5.99	63.4	320.8	4.87	8.94	92.8	349.7	1.53	3.25	33.6	53.1	0.03
0138	0144	13.24	98.2	450.5	3.95	10.36	101.1	441.9	4.27	17.21	110.0	339.1	2.08	8.65	39.9	31.4	0.02
0151	0157	5.01	52.8	497.1	6.88	5.09	45.2	458.8	6.73	5.45	55.0	373.1	3.53	1.51	22.3	78.8	0.09
0153	0160	2.22	33.1	487.5	4.34	1.98	34.5	459.7	4.22	2.24	37.0	388.9	1.99	0.80	17.3	94.3	0.11
0043	0043	2.67	21.4	504.9	9.44	2.53	36.2	491.0	10.63	2.81	14.4	491.1	7.92	0.37	0.6	90.4	0.10
0035	0035	2.89	40.3	567.9	9.34	2.96	39.7	533.4	10.27	2.85	49.8	489.2	6.38	0.71	22.8	94.9	0.25
0012	0012	3.78	44.0	495.9	7.49	3.60	41.4	483.6	7.81	4.70	75.4	421.9	3.77	1.13	19.0	167.1	0.81
0025	0025	8.85	62.4	459.9	5.77	6.53	47.8	428.4	6.05	9.57	74.3	428.2	4.21	1.15	24.8	72.8	0.05
0122	0126	5.84	61.2	379.0	4.88	4.77	55.8	387.2	6.07	7.84	86.3	321.2	2.44	0.91	14.8	43.4	0.06
0124	0128	4.55	55.7	421.2	5.33	4.15	51.1	420.1	6.35	7.05	98.4	376.2	2.23	1.43	15.3	61.1	0.08
0134	0139	3.56	55.0	288.2	4.58	3.35	54.9	234.3	3.75	2.87	55.4	264.5	2.45	0.65	12.6	41.5	0.05
0096	0096	3.90	42.4	295.9	3.19	3.38	37.5	336.0	3.80	5.76	64.6	297.0	2.52	0.74	12.2	49.1	0.04
0118	0118	8.03	102.6	348.1	1.31	7.26	112.4	363.7	1.49	8.57	111.0	330.8	0.61	2.89	25.5	56.9	0.03
0149	0155	3.01	28.1	571.2	8.82	2.51	30.2	532.9	8.87	3.91	43.6	477.4	4.34	0.78	15.0	75.1	0.06
0158	0165	2.85	34.9	583.0	8.60	2.17	29.0	523.6	8.13	3.65	54.0	505.1	4.75	0.70	20.3	60.9	0.04
0005	0005	3.62	44.4	548.3	7.28	3.20	32.1	492.2	6.88	3.82	45.9	483.9	4.60	0.88	16.2	137.4	0.12
0041	0041	3.81	42.8	538.0	4.58	3.43	33.6	507.3	4.61	3.98	25.1	521.1	2.30	1.62	12.1	87.5	0.05
0108	0108	2.71	26.8	421.8	6.31	2.61	33.5	419.0	6.71	3.07	49.3	406.6	3.44	0.73	21.4	58.6	0.06

		ACCEL/DECEL				ACCEL/DECEL CALCULATED				SHORT CYCLE				STEADY STATE-IDLE			
CAR#	RUN#	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX
0049	0049	2.82	22.6	565.7	9.54	2.65	17.1	542.9	9.88	2.20	6.5	491.8	6.52	0.36	0.6	99.0	0.15
0051	0051	3.82	28.5	471.5	5.12	2.82	21.7	459.3	5.18	3.49	22.6	442.2	2.06	0.69	6.8	82.5	0.03
0090	0090	2.70	22.5	501.1	6.03	2.83	22.2	505.1	6.04	3.44	43.4	411.0	3.17	1.65	20.9	86.5	0.29
0125	0129	4.48	42.9	420.2	6.93	3.87	43.9	426.7	7.80	5.57	64.6	372.3	4.90	1.29	19.0	43.0	0.10
0142	0148	6.78	69.5	340.0	3.64	5.22	55.8	319.1	3.86	6.34	49.8	308.1	3.64	2.55	24.1	48.5	0.04
0023	0023	5.99	81.2	352.6	2.70	5.20	87.2	335.8	2.42	6.85	90.4	323.3	1.46	1.83	21.1	65.4	0.04
0132	0137	3.46	26.1	402.0	4.30	3.03	29.4	420.5	4.12	3.93	23.5	390.5	3.87	0.76	9.3	58.9	0.08
0126	0131	4.11	68.0	417.3	5.01	2.22	67.0	421.4	5.47	4.25	76.4	277.7	2.67	1.41	35.0	67.8	0.08
0124	0140R	3.62	65.1	441.7	5.21	3.36	74.8	420.9	5.34	4.84	88.5	381.6	3.78	1.64	37.4	71.2	0.16
0143	0149	3.90	92.4	262.1	1.52	3.22	88.0	238.0	1.65	2.91	93.9	191.4	0.80	0.91	20.6	43.4	0.05
0157	0164	2.47	13.7	491.4	7.07	2.12	12.4	463.3	7.02	1.96	23.1	460.4	2.47	0.38	2.3	95.7	0.08
0167	0175	1.98	42.0	395.3	4.68	1.80	31.1	370.9	4.20	1.67	15.8	349.0	2.76	0.26	1.9	71.5	0.09
0074	0074	2.47	11.4	451.1	6.92	2.01	9.1	442.2	6.90	2.38	11.0	395.3	3.22	0.49	0.4	72.4	0.10
0148	0154	14.54	40.1	490.7	10.73	15.72	39.3	466.1	11.78	12.25	52.7	367.6	5.08	1.22	25.6	70.3	0.10
0148	0158R	13.79	37.3	497.1	10.36	16.10	47.0	447.4	11.89	15.76	45.5	382.6	5.83	1.15	24.4	72.6	0.06
0152	0159	3.29	32.4	475.9	8.56	2.91	32.2	448.7	9.21	2.64	26.1	358.7	5.02	0.76	15.0	76.2	0.10
0062	0062	2.42	25.2	399.5	4.71	2.18	22.6	399.5	4.76	2.32	20.3	362.2	2.34	0.40	8.5	60.2	0.06
0163	0170	3.88	45.4	316.6	4.91	3.17	38.4	318.5	4.81	2.99	23.4	241.5	4.10	0.76	13.4	26.7	0.05
0015	0015	3.61	52.4	247.3	2.56	3.59	40.9	244.8	3.08	3.78	65.0	247.8	1.33	2.13	18.4	36.4	0.11
0088	0088	2.15	31.1	254.5	3.14	1.67	28.9	246.7	3.44	1.05	20.8	290.2	2.05	0.34	15.5	38.2	0.04
0036	0036	3.46	38.9	258.4	2.01	2.31	24.0	265.4	1.69	1.46	20.8	252.6	1.17	0.45	3.7	41.0	0.01
0101	0101	3.51	39.3	252.7	2.10	3.26	48.9	233.0	2.38	4.38	24.2	259.9	1.41	1.38	4.7	35.7	0.03
0026	0026	5.09	61.3	226.9	2.15	3.72	48.1	238.8	2.12	3.33	69.1	210.7	0.89	1.16	23.1	35.3	0.02
0031	0031	3.36	63.9	231.8	3.15	2.71	69.3	224.1	2.86	3.81	43.3	223.6	1.54	0.77	8.7	27.7	0.02
0106	0106	2.48	58.5	166.4	1.82	2.16	62.4	164.2	2.02	2.45	43.5	147.8	1.61	0.49	4.2	9.1	0.01
0082	0082	4.60	41.9	256.5	4.18	3.68	42.6	233.8	3.71	6.61	65.1	199.3	1.33	2.76	22.5	14.1	0.01
0159	0166	3.33	33.9	216.4	3.13	2.41	32.2	200.0	2.95	5.23	45.4	198.0	1.59	0.58	9.6	17.2	0.02
0162	0169	17.22	19.6	109.0	1.45	15.59	22.3	102.0	1.53	6.83	30.5	97.5	0.73	1.59	11.0	13.0	0.01
0130	0135	4.06	52.1	140.4	1.25	3.67	57.5	221.0	1.34	3.89	44.2	104.6	0.78	1.24	8.6	13.4	0.01

CAR#	RUN#	ACCEL/DECEL HC	ACCEL/DECEL CO	ACCEL/DECEL CO2	ACCEL/DECEL NOX	ACCEL/DECEL CALCULATED HC	ACCEL/DECEL CALCULATED CO	ACCEL/DECEL CALCULATED CO2	ACCEL/DECEL CALCULATED NOX	SHORT CYCLE HC	SHORT CYCLE CO	SHORT CYCLE CO2	SHORT CYCLE NOX	STEADY STATE-IDLE HC	STEADY STATE-IDLE CO	STEADY STATE-IDLE CO2	STEADY STATE-IDLE NOX
0119	0125	4.44	45.8	697.5	9.02	4.08	50.5	697.8	10.27	3.33	63.2	714.8	4.76	1.29	40.1	99.1	0.10
0079	0084	3.53	20.8	697.5	12.69	3.71	21.0	649.4	13.07	3.69	29.2	623.3	8.40	0.92	13.1	114.4	0.16
0110	0118	2.18	20.1	527.4	7.45	1.97	19.5	511.1	7.59	2.08	33.3	501.8	3.90	0.52	13.8	94.1	0.10
0158	0166	1.74	17.0	596.3	11.17	1.77	17.7	562.8	11.87	1.95	29.4	536.3	5.76	0.54	13.2	113.2	0.15
0111	0119	1.93	17.6	517.0	5.44	1.90	19.3	529.5	6.04	2.59	15.8	584.6	3.70	0.45	4.3	98.4	0.11
0034	0037	3.28	80.8	590.2	3.18	3.30	75.7	557.6	3.67	2.99	93.9	475.1	1.33	0.48	11.9	85.0	0.09
0133	0141	5.38	81.5	529.3	7.60	8.06	86.4	496.5	7.45	11.62	131.1	387.9	2.12	2.37	22.5	65.2	0.10
0122	0130	3.66	29.7	461.6	7.46	3.55	37.1	447.7	7.92	3.13	26.0	387.0	4.14	0.98	4.9	35.1	0.08
0156	0167	4.05	76.5	447.7	6.04	4.20	65.4	431.2	7.17	3.74	63.4	362.1	4.18	0.97	20.3	49.7	0.06
0048	0052	8.79	175.0	333.0	1.69	7.62	169.3	329.7	1.24	9.30	152.6	272.6	0.77	2.00	32.7	55.1	0.07
0055	0058	5.94	69.8	547.7	7.93	6.07	76.0	558.6	9.15	6.58	94.5	468.3	3.20	0.95	7.3	77.6	0.11
0152	0162	4.32	52.4	627.5	7.42	4.12	50.0	613.7	7.95	5.18	28.2	538.2	6.22	0.72	11.7	89.7	0.10
0152	0171R	5.48	39.1	640.0	8.47	3.91	42.9	606.6	9.46	4.79	26.6	541.0	6.87	0.69	11.3	91.7	0.12
0065	0070	0.81	75.5	370.6	3.36	3.12	80.8	348.4	3.85	7.27	71.3	339.8	2.69	2.23	23.7	39.5	0.05
0092	0103	1.36	23.8	769.8	9.85	1.45	26.9	727.0	10.49	1.09	34.5	734.9	2.99	0.24	2.0	159.4	0.16
0082	0111R	1.49	11.3	778.4	10.79	1.84	15.0	722.9	10.89	1.09	24.0	739.7	4.19	0.23	0.7	157.7	0.16
0097	0104	1.83	16.1	698.1	11.07	1.96	20.6	671.0	9.94	1.69	22.7	629.1	6.38	0.35	10.2	116.7	0.12
0012	0014	4.81	28.8	535.3	8.68	4.52	29.3	530.5	9.49	4.07	37.6	469.1	3.57	0.49	7.3	84.4	0.09
0004	0005	3.17	43.6	590.1	5.42	2.97	44.7	570.0	4.99	2.28	17.3	522.0	3.20	0.62	2.8	86.5	0.18
0018	0019	7.16	235.1	472.5	1.98	6.99	221.7	455.0	2.14	5.31	134.9	406.8	1.53	0.81	13.5	68.5	0.09
0052	0057	5.42	124.8	540.5	3.30	5.22	127.1	533.0	3.21	7.82	124.7	455.1	1.61	1.32	28.2	56.7	0.10
0052	0065R	5.21	125.4	526.9	3.42	4.86	124.3	526.6	3.69	5.47	122.3	451.7	1.61	1.13	27.9	56.0	0.09
0016	0012	2.12	14.4	451.9	7.29	1.85	13.5	432.9	8.30	3.42	35.6	387.5	3.08	0.53	14.0	41.7	0.08
0057	0060	2.62	45.7	554.3	7.32	2.65	46.5	551.1	7.16	2.72	49.3	561.5	4.34	0.41	14.5	70.7	0.17
0107	0105	1.49	17.6	344.5	4.77	1.21	14.9	331.8	4.95	1.83	24.7	268.7	2.68	0.29	4.8	35.8	0.03
0126	0134	1.02	15.1	655.9	5.42	0.97	21.6	637.2	5.37	0.85	23.3	616.4	2.91	0.46	7.4	123.0	0.22
0137	0146	1.45	16.3	566.7	9.75	1.49	13.9	592.6	9.45	1.70	22.4	569.9	6.69	0.43	4.8	108.9	0.16
0026	0029	2.03	13.8	578.7	8.10	2.06	13.8	551.4	9.19	2.34	24.1	436.5	4.58	0.57	11.5	104.5	0.17
0027	0030	1.44	12.6	442.5	7.15	1.45	13.0	412.9	7.72	1.11	6.7	366.8	4.49	0.29	2.4	75.7	0.26
0038	0039	4.95	35.3	615.1	8.46	4.42	32.3	610.7	10.64	2.87	19.3	561.2	6.73	0.93	8.7	200.7	2.53
0075	0091	2.60	18.6	495.5	7.32	2.63	21.1	525.5	8.90	3.03	19.9	501.4	5.97	0.60	10.1	92.3	0.18
0037	0035	5.63	92.2	472.4	6.39	5.70	79.8	443.3	6.75	9.37	152.2	341.8	1.76	2.37	51.2	63.2	0.09
0037	0042R	5.70	84.2	454.9	1.67	5.66	83.9	447.7	3.06	8.78	144.0	357.7	2.35	2.40	50.6	63.7	0.09
0070	0074	2.38	30.3	614.0	6.14	2.55	28.6	599.2	6.46	1.79	127.5	550.2	3.00	0.57	13.2	98.4	0.11
0095	0098	2.25	5.5	564.8	10.79	2.47	5.6	553.2	10.69	1.91	9.1	526.0	7.22	0.34	5.4	115.1	0.18
0064	0067	2.83	36.5	564.0	4.91	2.76	34.1	547.5	5.17	3.09	71.9	343.3	2.19	0.71	22.8	55.5	0.09
0089	0093	4.07	54.8	514.7	5.76	4.00	59.3	508.4	5.93	4.11	45.2	436.4	3.64	0.79	10.7	67.2	0.07
0090	0096	2.44	25.3	394.9	6.69	2.34	21.7	374.0	7.14	1.95	4.9	331.5	5.20	0.21	0.4	48.4	0.18
0050	0053	8.51	40.6	373.1	8.42	7.41	39.7	360.7	9.88	12.38	71.0	266.6	2.39	5.18	18.8	37.9	0.15
0130	0138	7.23	56.8	522.7	7.21	7.17	55.6	502.9	7.82	7.54	74.7	407.9	2.99	1.76	21.1	52.8	0.08
0138	0147	12.26	132.7	445.7	3.11	10.58	136.0	415.9	2.94	14.18	189.2	326.2	0.74	6.46	37.2	43.3	0.10
0084	0092	3.54	38.5	449.8	7.85	3.20	38.9	436.0	8.40	4.03	58.2	351.1	3.14	0.85	15.1	49.8	0.08
0084	0095R	3.56	43.1	442.8	7.50	3.04	40.5	435.1	8.20	4.26	61.3	351.6	2.71	0.92	15.8	49.5	0.10
0103	0110	23.60	78.9	467.1	4.81	22.62	81.4	448.8	5.53	19.81	79.3	388.3	3.21	2.21	26.1	55.3	0.10
0141	0149	8.74	79.4	316.4	2.99	8.06	81.0	305.6	3.24	16.16	161.4	243.6	0.80	5.26	47.1	53.3	0.08
0091	0100	9.84	71.3	515.5	4.98	8.82	74.5	492.7	5.59	8.55	82.3	448.9	3.38	3.37	27.7	39.6	0.08
0100	0108	7.32	43.1	514.4	7.99	6.04	51.0	502.2	6.87	8.00	48.0	424.5	4.78	3.21	13.4	44.4	0.09
0150	0159	3.33	52.5	304.7	2.33	2.99	50.7	297.1	2.58	3.12	62.7	241.0	1.15	0.92	16.9	49.6	0.10
0071	0076	3.95	44.4	459.9	4.49	3.33	37.9	448.6	6.06	3.08	47.3	399.4	5.18	0.84	25.6	59.1	0.10
0115	0120	5.98	66.7	378.5	4.01	5.45	72.6	350.9	3.84	4.59	71.5	264.7	2.07	1.20	14.2	31.3	0.10

CAR#	RUN#	ACCEL/DECEL HC	ACCEL/DECEL CO	ACCEL/DECEL CO2	ACCEL/DECEL NOX	ACCEL/DECEL CALCULATED HC	ACCEL/DECEL CALCULATED CO	ACCEL/DECEL CALCULATED CO2	ACCEL/DECEL CALCULATED NOX	SHORT CYCLE HC	SHORT CYCLE CO	SHORT CYCLE CO2	SHORT CYCLE NOX	STEADY STATE-IDLE HC	STEADY STATE-IDLE CO	STEADY STATE-IDLE CO2	STEADY STATE-IDLE NOX
0165	0175	8.32	56.7	524.4	6.82	7.82	59.0	510.4	8.07	8.74	77.1	409.0	3.36	2.84	28.0	52.2	0.10
0029	0028	13.02	45.2	505.8	10.50	15.04	62.6	492.4	13.48	2.43	50.7	429.8	11.04	1.02	27.1	42.7	0.10
0054	0059	6.30	74.4	471.0	7.22	5.19	68.2	460.7	9.07	4.82	48.3	397.4	6.86	0.77	10.1	41.6	0.09
0073	0078	2.69	24.6	553.1	4.64	2.93	24.5	527.9	4.66	2.68	37.1	490.6	2.12	0.80	22.5	59.8	0.05
0148	0157	3.33	28.7	413.1	5.96	2.78	28.9	339.7	5.22	3.50	34.3	341.7	3.53	0.36	6.9	48.7	0.05
0096	0101	6.96	54.8	517.0	5.50	5.16	54.8	489.9	5.99	6.21	70.7	395.5	2.40	1.04	19.9	30.3	0.05
0143	0158	2.92	26.2	416.0	6.05	2.65	26.2	398.3	6.04	2.27	11.6	359.4	3.87	0.35	4.8	48.7	0.06
0008	0008	2.68	27.7	528.5	10.14	2.45	25.9	482.1	10.79	3.00	39.6	422.9	4.37	0.63	12.3	56.3	0.08
0081	0085	4.02	40.8	535.9	8.68	1.73	33.2	507.2	9.60	4.54	34.0	471.5	7.62	1.06	16.1	50.4	0.08
0021	0022	3.34	41.5	482.6	7.91	3.18	42.8	461.7	9.06	2.84	30.3	614.1	5.85	0.62	9.0	42.6	0.08
0162	0170	6.27	100.9	445.1	3.89	6.04	91.0	438.7	4.82	5.21	61.6	373.4	3.30	1.69	24.0	53.0	0.08
0171	0181	2.36	16.3	475.4	8.68	2.48	20.5	452.2	8.04	2.44	16.0	391.7	4.66	0.73	0.5	53.4	0.10
0134	0139	6.99	90.4	490.6	3.74	5.91	87.0	469.3	3.96	6.29	132.5	371.7	0.77	1.71	27.1	43.4	0.08
0005	0004	3.42	43.6	622.8	8.75	3.27	39.3	599.0	9.29	4.27	65.2	549.5	4.80	2.71	35.7	92.5	0.06
0135	0142	3.37	24.6	619.4	9.95	3.51	24.1	612.2	9.16	3.36	67.3	618.3	8.28	0.51	4.1	123.7	0.13
0020	0023	7.05	63.9	646.6	8.87	6.66	63.0	531.6	8.23	8.98	71.6	481.2	4.42	3.22	18.7	61.1	0.05
0080	0086	5.28	78.7	520.8	7.68	4.39	75.7	511.1	8.84	5.10	77.8	459.7	4.49	1.38	23.5	71.8	0.17
0075	0081	3.29	30.3	516.7	10.23	3.56	26.2	513.6	10.11	3.50	31.1	460.6	8.39	0.60	10.9	58.6	0.13
0166	0176	4.48	39.2	623.1	10.25	4.31	36.7	588.0	9.56	4.52	49.3	514.9	6.32	0.98	15.3	63.7	0.10
0010	0010	2.66	28.3	516.6	8.16	2.86	24.9	508.9	8.68	3.36	26.2	508.8	6.58	1.52	17.2	54.8	0.06
0063	0068	1.85	14.5	396.9	7.75	1.29	14.5	380.3	8.74	1.69	15.8	320.1	3.87	0.31	6.6	51.9	0.05
0106	0114	3.46	35.0	656.5	9.49	3.67	36.4	640.0	11.45	3.52	41.0	596.5	9.25	0.83	20.6	81.8	0.09
0114	0116	1.61	36.0	468.3	6.54	1.99	35.9	450.0	7.50	2.06	33.5	387.1	4.14	0.67	12.8	57.0	0.16
0121	0129	1.26	11.7	450.4	9.05	1.18	14.3	476.7	8.31	1.25	13.9	369.3	5.39	0.22	5.0	60.1	0.09
0042	0046	2.22	28.5	417.4	8.42	2.22	19.7	481.9	9.49	1.47	27.1	352.5	5.44	0.62	10.8	41.0	0.09
0074	0079	2.89	80.9	483.9	3.57	2.99	75.5	458.6	4.32	2.60	70.0	371.5	2.34	0.71	28.5	45.6	0.08
0049	0050	4.29	56.2	537.0	5.76	4.62	57.8	539.3	6.64	3.85	47.1	472.6	4.25	0.77	13.9	80.7	0.11
0022	0021	37.73	114.5	402.3	4.22	33.51	126.6	379.1	3.07	28.28	149.0	309.6	0.77	3.50	15.9	32.0	0.06
0170	0183	3.40	36.8	512.0	9.25	3.91	41.9	480.6	8.47	3.14	17.6	455.6	7.25	0.69	11.5	79.8	0.16
0006	0006	1.70	12.6	336.9	6.58	1.74	13.5	329.7	6.66	1.57	12.6	309.1	3.85	0.08	1.4	59.9	0.09
0144	0153	1.59	22.1	344.0	5.82	1.59	12.4	330.2	5.62	1.65	15.3	294.3	4.56	0.24	7.2	37.2	0.10
0149	0160	2.58	18.0	593.6	10.93	2.23	17.6	556.6	11.72	2.79	35.9	501.0	6.50	0.75	18.9	77.8	0.12
0151	0161	2.25	18.1	510.6	7.11	1.96	20.0	486.5	7.84	1.65	22.4	482.2	4.02	0.44	15.2	71.2	0.15
0157	0168	2.07	14.3	709.2	12.12	1.72	13.1	649.1	11.89	1.88	23.3	608.8	7.46	0.44	11.3	91.7	0.14
0014	0015	5.27	38.8	609.5	9.00	6.68	31.7	589.1	9.61	7.27	48.3	674.8	8.97	2.19	21.6	59.6	0.10
0129	0137	1.45	9.4	355.2	6.67	1.27	7.9	347.1	5.73	1.34	18.7	318.8	3.76	0.34	11.8	50.3	0.08
0140	0144	1.96	15.1	468.7	10.29	1.90	13.1	437.9	9.87	1.59	11.8	407.1	8.74	0.25	2.2	70.7	0.13
0078	0083	1.71	10.3	575.7	8.17	1.73	12.1	573.8	7.94	1.35	7.0	567.8	5.63	0.25	0.5	119.3	0.15
0117	0122	2.65	13.2	547.6	10.57	2.36	13.0	521.2	11.67	2.32	17.3	494.2	6.98	0.45	7.3	65.2	0.11
0083	0090	2.94	23.3	518.4	9.86	3.26	22.7	508.4	7.64	3.12	39.7	464.3	5.93	0.81	21.8	95.7	0.12
0125	0132	3.24	16.0	485.5	11.77	3.32	15.7	471.3	11.81	3.61	26.2	415.8	8.23	0.79	14.9	52.4	0.17
0118	0124	4.79	76.4	424.6	4.11	4.33	72.4	402.3	4.24	4.21	78.2	339.1	1.41	0.46	10.5	58.1	0.09
0159	0169	6.14	73.5	554.6	7.19	5.69	67.9	506.5	8.42	5.85	72.7	412.2	4.14	1.77	21.8	33.9	0.08
0159	0174R	9.15	64.6	544.8	7.41	7.68	61.0	502.3	8.57	5.48	68.2	409.2	4.66	1.79	23.5	44.2	0.10
0032	0033	3.49	63.7	416.8	4.30	3.64	64.6	400.3	4.90	2.23	18.3	382.2	4.19	0.37	7.7	63.2	0.09
0107	0113	7.46	86.5	356.8	2.39	7.03	88.8	362.2	2.94	8.57	113.6	332.1	1.05	1.98	27.6	62.7	0.08
0113	0121	4.85	27.3	521.1	9.00	4.51	27.8	482.9	9.86	5.18	51.4	403.5	6.61	1.08	21.0	43.9	0.14
0033	0038	5.20	32.1	501.4	5.74	4.89	31.6	486.2	8.03	2.28	75.8	525.0	9.67	1.30	28.8	47.7	0.05
0044	0043	5.20	54.3	341.6	2.53	4.66	58.2	324.5	2.63	5.00	65.4	288.0	1.01	1.60	3.1	42.2	0.08
0053	0055	2.83	19.4	342.8	5.71	3.23	20.1	342.5	5.98	3.22	32.7	317.6	3.38	0.40	8.7	39.4	0.23

		ACCEL/DECEL				ACCEL/DECEL CALCULATED				SHORT CYCLE				STEADY STATE-IDLE			
CAR#	RUN#	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX
0109	0117	4.91	93.0	355.0	2.33	4.53	92.8	347.1	4.45	4.86	95.1	302.7	1.15	0.39	15.2	32.8	0.09
0066	0072	3.76	32.1	633.6	8.77	4.08	27.3	608.3	8.17	3.45	28.1	575.2	5.79	0.70	8.8	105.1	0.15
0072	0077	23.63	32.1	566.2	9.72	22.77	28.1	545.4	10.48	12.79	35.1	491.5	6.43	1.63	7.2	87.0	0.13
0085	0088	4.43	21.2	398.9	7.20	5.19	18.1	376.2	7.44	5.63	10.1	332.5	5.31	4.46	0.6	28.9	0.15
0108	0115	29.84	53.6	551.5	7.65	29.30	53.0	532.7	8.70	25.49	51.6	450.2	4.86	3.94	9.7	52.7	0.08
0127	0135	5.07	47.1	346.0	2.09	4.07	48.2	335.6	1.68	2.88	35.3	305.0	1.17	0.67	2.1	46.0	0.08
0160	0177	4.94	41.7	502.3	6.16	5.21	43.0	482.2	6.76	4.64	42.6	395.2	3.50	0.79	13.8	68.2	0.10
0013	0013	1.97	32.6	447.2	3.24	4.88	21.5	469.4	3.36	1.79	13.5	375.3	2.97	0.28	1.4	43.8	0.11
0120	0127	3.63	41.4	246.3	3.12	3.08	38.1	300.6	3.36	2.32	30.3	249.0	2.11	0.33	4.7	32.3	0.05
0154	0164	3.21	28.4	328.8	7.30	3.34	30.7	305.6	8.36	3.40	19.4	257.1	6.20	0.66	4.0	28.3	0.10
0035	0036	8.96	82.7	413.4	4.04	7.51	78.5	406.5	4.11	7.80	93.6	304.8	1.46	1.41	21.6	34.5	0.08
0061	0064	4.00	35.1	476.3	7.42	4.28	35.7	459.9	8.50	4.29	59.9	414.1	4.92	1.23	25.8	79.4	0.18
0124	0131	2.34	21.3	586.4	8.79	2.19	24.2	554.0	9.38	2.04	29.6	511.1	4.50	0.59	13.8	108.1	0.15
0002	0001	2.84	7.4	527.7	11.00	2.71	7.2	485.0	12.66	2.76	14.3	435.7	5.51	0.70	5.9	77.0	0.08
0045	0048	2.35	21.2	638.8	7.71	2.25	18.5	616.0	8.15	2.84	33.7	540.4	4.01	0.91	21.2	71.6	0.10
0129	0136	3.38	17.5	418.1	5.19	3.51	18.9	394.6	5.19	2.03	7.7	344.7	3.90	0.42	0.6	50.3	0.27
0068	0071	5.50	58.6	466.9	4.39	5.40	62.0	464.9	4.16	6.38	83.0	347.8	1.53	1.07	20.3	41.8	0.10
0058	0062	1.62	26.3	335.2	2.28	1.90	26.8	318.2	2.63	1.74	15.0	295.3	1.91	0.41	0.4	43.7	0.13
0025	0026	2.24	26.5	547.4	6.78	2.18	25.6	571.0	7.40	1.41	3.9	540.4	5.67	0.72	1.1	113.1	0.15
0131	0140	2.92	12.0	610.6	8.83	2.79	14.5	579.3	9.69	2.52	13.7	547.3	4.82	0.39	3.0	111.6	0.12
0131	0149R	2.31	43.3	626.2	8.17	3.50	43.9	583.6	8.41	2.57	25.3	565.7	5.12	0.50	4.6	109.7	0.10
0003	0002	2.43	14.3	568.4	7.58	2.21	13.9	543.0	8.68	2.08	18.3	492.9	3.86	0.33	5.6	100.2	0.07
0098	0094	2.17	27.9	714.4	7.77	2.29	28.9	698.1	7.89	3.22	65.3	619.0	2.69	1.35	28.2	126.3	0.11
0067	0073	5.09	43.4	588.1	8.76	5.27	43.5	575.5	8.41	6.52	59.1	537.4	2.81	3.06	3.9	66.9	0.08
0147	0156	4.23	14.4	629.1	8.22	4.06	13.2	602.2	8.97	4.67	13.9	540.9	4.50	1.13	3.8	92.2	0.08
0060	0066	6.12	126.9	462.4	4.21	5.50	104.9	435.1	4.00	5.90	97.7	368.8	1.05	2.68	23.0	38.1	0.07
0069	0075	4.41	34.0	523.9	7.62	4.43	33.2	435.3	6.81	5.39	41.0	420.0	5.33	2.29	18.4	53.4	0.04
0153	0163	6.81	77.4	543.8	6.32	6.75	72.8	523.2	7.32	6.36	48.9	467.9	4.92	1.89	21.5	77.8	0.27
0167	0178	6.98	88.1	569.8	6.51	8.90	79.5	552.2	7.06	7.48	93.3	477.0	2.81	1.92	22.6	84.8	0.14
0169	0180	3.56	38.1	634.6	6.79	3.71	43.8	600.2	6.84	2.84	16.2	544.8	4.21	0.77	7.1	80.4	0.12
0051	0051	1.47	20.6	466.0	7.82	1.42	24.3	447.4	8.12	1.25	9.8	414.8	4.94	0.23	1.4	86.0	0.25
0051	0056R	1.37	18.1	467.1	8.42	1.29	14.5	435.5	8.96	1.14	6.5	417.8	4.95	0.16	0.6	82.2	0.30
0099	0107	1.67	30.6	456.6	6.78	1.41	43.4	434.0	6.76	1.99	46.0	357.0	2.95	0.42	15.1	47.2	0.10
0136	0145	3.53	31.3	600.4	10.46	4.43	37.7	559.7	10.09	4.21	58.9	470.6	6.28	1.18	21.6	80.3	0.14
0007	0007	2.67	28.4	536.5	9.73	2.62	28.0	497.4	10.14	3.45	55.2	398.5	4.79	0.69	21.4	64.5	0.09
0036	0034	2.49	22.5	405.2	8.08	2.76	20.2	383.9	9.01	2.28	10.6	343.1	5.98	0.33	3.5	47.4	0.12
0023	0018	2.93	34.8	427.2	4.83	3.14	35.1	420.9	5.53	3.22	26.8	362.9	4.14	0.92	12.5	66.1	0.12
0039	0040	7.14	128.5	415.1	2.66	7.00	117.1	400.9	3.80	6.25	92.1	361.4	2.32	1.26	22.6	55.7	0.08
0059	0063	1.76	15.7	447.5	6.83	1.94	17.6	431.5	7.30	1.61	16.4	366.1	4.18	0.24	1.0	64.7	0.20
0092	0097	3.72	64.2	523.7	7.98	3.64	68.1	501.8	9.00	7.88	48.6	422.5	6.21	0.60	8.1	54.9	0.19
0015	0025	4.03	35.2	459.1	6.77	3.61	36.2	471.6	8.12	3.40	24.2	371.8	4.35	0.53	8.4	48.2	0.08
0031	0032	3.38	21.3	546.5	12.52	3.50	21.4	532.9	12.13	3.25	14.5	492.1	10.14	0.78	8.4	80.5	0.52
0142	0151	3.94	55.8	448.9	6.90	3.69	49.6	416.4	7.52	3.54	38.6	399.1	6.44	0.92	14.3	44.5	0.11
0024	0024	2.67	7.5	643.2	12.38	2.71	11.0	679.8	15.32	2.88	10.6	633.9	8.76	0.57	1.1	163.5	0.67
0043	0045	2.29	20.1	565.8	7.78	2.14	28.0	441.7	8.66	2.10	16.4	508.3	3.73	0.58	6.6	89.4	0.20
0112	0126	3.72	33.3	582.3	9.09	3.25	29.3	563.9	9.38	3.81	41.1	503.8	7.03	0.81	16.4	73.1	0.09
0105	0112	2.73	28.9	620.3	12.25	2.54	19.3	592.4	9.65	2.44	10.9	573.8	5.64	0.75	4.6	108.1	0.12
0040	0041	3.63	61.0	574.2	5.09	4.06	68.5	572.4	5.58	3.86	68.2	494.6	2.38	1.21	22.6	87.1	0.07
0030	0031	8.67	159.2	441.9	2.67	7.66	153.3	453.6	2.04	9.65	104.0	376.5	1.45	2.88	6.3	97.7	0.15
0030	0047R	8.85	158.9	488.0	2.42	8.77	159.6	443.9	2.18	9.67	96.7	476.3	1.80	3.71	10.8	144.8	0.27

		ACCEL/DECEL				ACCEL/DECEL CALCULATED				SHORT CYCLE				STEADY STATE-IDLE			
CAR#	RUN#	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX
0087	0089	4.08	34.7	504.1	8.26	4.06	34.4	494.2	9.68	4.02	31.1	460.3	6.29	0.92	11.6	66.8	0.13
0062	0069	5.12	54.5	520.5	7.10	4.91	54.0	487.3	7.72	6.02	54.1	470.1	5.10	2.75	9.8	61.7	0.10
0132	0143	7.10	159.0	517.6	3.47	6.73	139.3	503.9	4.41	6.26	95.5	474.5	3.93	0.94	28.6	69.0	0.05
0163	0173	3.62	53.6	553.3	8.82	4.25	49.6	519.9	9.49	4.05	54.9	461.8	5.11	1.31	21.5	82.6	0.11
0011	0011	5.11	47.6	566.6	8.65	5.47	48.0	561.7	9.47	5.00	31.8	447.1	4.05	1.22	7.0	98.4	0.11
0094	0102	1.75	11.9	399.5	4.87	1.57	11.2	392.7	4.14	1.30	5.7	381.2	2.39	0.09	0.6	72.7	0.06
0145	0152	2.42	38.2	399.8	6.20	2.43	42.7	385.0	7.09	1.98	23.6	336.6	5.60	0.41	9.4	60.3	0.11
0101	0109	2.85	21.1	504.5	8.36	2.94	21.8	486.1	8.68	3.07	37.9	410.9	4.45	0.65	16.7	68.9	0.10
0123	0128	1.34	47.7	519.5	6.67	3.25	54.8	448.3	5.95	3.22	45.5	402.0	3.77	1.24	8.7	50.0	0.11
0009	0009	4.35	97.7	395.0	4.01	3.98	97.8	385.5	4.20	4.80	109.6	297.8	1.41	1.23	21.4	34.6	0.07
0155	0165	4.13	26.6	343.5	5.67	3.87	26.8	328.5	6.25	4.42	17.3	274.0	4.26	0.81	9.3	30.5	0.11
0041	0044	5.00	123.4	492.0	2.81	5.26	115.2	484.7	3.21	5.47	134.6	415.2	1.42	0.96	25.0	114.4	0.20
0161	0172	8.50	79.5	383.3	5.15	7.40	59.3	387.1	6.99	7.50	74.5	282.5	2.38	1.77	4.5	43.9	0.13
0028	0027	5.02	50.3	389.4	5.59	4.55	48.8	367.5	6.02	4.19	50.5	293.3	2.44	0.84	9.1	44.8	0.08
0046	0049	2.31	55.5	322.2	3.19	1.67	40.2	314.1	4.32	2.06	26.3	325.4	4.22	0.39	5.6	37.8	0.08
0047	0054	3.13	28.3	302.5	3.31	3.01	26.5	291.0	3.71	2.08	25.2	228.4	1.90	0.24	6.3	51.8	0.06
0139	0150	2.48	21.4	283.5	4.06	2.06	19.6	268.3	3.22	1.99	20.0	272.6	2.24	0.69	2.1	48.9	0.06
0139	0154R	1.56	20.0	295.1	4.00	2.20	20.5	289.8	3.87	2.07	16.3	292.7	1.92	0.74	2.7	47.2	0.08
0077	0082	1.68	16.5	281.0	4.88	1.48	15.4	278.2	4.16	1.04	78.7	335.7	2.51	0.25	3.7	50.7	0.08
0056	0061	4.47	40.6	266.3	3.97	4.05	40.9	276.7	4.55	4.33	57.9	254.3	1.92	2.28	20.9	33.7	0.05
0116	0123	4.51	40.1	342.0	7.31	4.14	45.4	337.6	7.67	3.64	29.2	347.6	5.00	1.14	7.8	29.0	0.23
0093	0099	4.15	44.1	331.1	4.64	3.88	44.1	308.8	4.46	3.24	26.8	329.4	2.80	1.57	3.9	20.9	0.12
0098	0106	5.10	37.6	256.1	3.96	4.59	42.5	246.4	4.30	2.72	38.4	235.7	2.57	2.29	9.4	16.5	0.10
0146	0155	5.14	49.8	222.5	2.15	4.79	44.0	214.8	2.22	5.64	55.7	199.1	1.46	2.28	10.4	15.0	0.09
0168	0182	3.78	46.0	208.5	1.73	3.77	48.8	204.6	1.62	3.61	56.1	204.6	1.37	1.21	11.2	22.4	0.08
0172	0184	3.81	23.0	290.7	7.42	4.53	23.1	272.9	7.66	4.34	11.5	257.2	6.00	2.27	0.5	28.9	0.17
0086	0087	2.11	10.0	328.2	9.32	2.03	8.5	331.5	8.95	1.66	9.1	327.0	6.66	0.18	4.1	41.2	0.21
0164	0179	1.72	9.1	199.9	4.08	1.60	7.8	196.0	4.42	1.57	9.1	193.5	2.69	0.06	1.8	33.2	0.09
0019	0020	6.28	47.7	177.7	1.63	5.39	38.3	184.1	2.22	6.65	38.2	149.4	0.98	0.23	5.2	14.2	0.07

SURVEILLANCE ACCELERATION-DECELERATION DRIVING SEQUENCE

TIME (SEC)	SPEED (MPH)	TIME (SEC)	SPEED (MPH)	TIME (SEC)	SPEED (MPH)	TIME (SEC)	SPEED (MPH)	TIME (SEC)	SPEED (MPH)	TIME (SEC)	SPEED (MPH)	TIME (SEC)	SPEED (MPH)	TIME (SEC)	SPEED (MPH)	TIME (SEC)	SPEED (MPH)
1.	0.0	58.	0.0	115.	32.9	172.	38.3	229.	47.6	286.	15.0	343.	59.4	400.	57.2	457.	30.0
2.	0.0	59.	0.0	116.	34.2	173.	40.5	230.	48.7	287.	15.0	344.	58.5	401.	57.9	458.	30.0
3.	0.0	60.	0.0	117.	35.6	174.	42.7	231.	50.0	288.	15.0	345.	57.4	402.	58.5	459.	29.5
4.	0.0	61.	0.0	118.	37.0	175.	45.0	232.	51.3	289.	15.0	346.	56.1	403.	58.9	460.	28.7
5.	0.0	62.	0.0	119.	38.5	176.	47.3	233.	52.6	290.	15.0	347.	54.4	404.	59.3	461.	27.3
6.	0.0	63.	0.0	120.	39.9	177.	49.5	234.	53.9	291.	15.0	348.	52.4	405.	60.0	462.	25.3
7.	0.0	64.	1.7	121.	41.2	178.	51.6	235.	55.2	292.	15.0	349.	49.9	406.	60.0	463.	22.7
8.	0.0	65.	4.6	122.	42.4	179.	53.6	236.	56.4	293.	15.0	350.	46.9	407.	60.0	464.	19.7
9.	0.0	66.	7.6	123.	43.5	180.	55.5	237.	57.5	294.	15.0	351.	43.6	408.	60.0	465.	17.3
10.	0.0	67.	10.3	124.	44.4	181.	57.2	238.	58.5	295.	15.0	352.	39.8	409.	60.0	466.	15.4
11.	1.8	68.	12.3	125.	45.0	182.	58.6	239.	59.3	296.	15.0	353.	35.7	410.	60.0	467.	15.0
12.	5.1	69.	13.7	126.	45.0	183.	59.8	240.	60.0	297.	15.0	354.	31.2	411.	60.0	468.	15.0
13.	9.1	70.	14.6	127.	45.0	184.	60.0	241.	60.0	298.	15.0	355.	26.6	412.	60.0	469.	15.0
14.	13.2	71.	15.0	128.	45.0	185.	60.0	242.	60.0	299.	15.0	356.	21.9	413.	60.0	470.	15.0
15.	17.1	72.	15.0	129.	45.0	186.	60.0	243.	60.0	300.	15.0	357.	17.3	414.	60.0	471.	15.0
16.	20.6	73.	15.0	130.	45.0	187.	60.0	244.	60.0	301.	15.0	358.	12.8	415.	60.0	472.	15.0
17.	23.4	74.	15.0	131.	45.0	188.	60.0	245.	60.0	302.	16.7	359.	8.7	416.	60.0	473.	15.0
18.	25.7	75.	15.0	132.	45.0	189.	60.0	246.	60.0	303.	20.0	360.	5.1	417.	60.0	474.	15.0
19.	27.3	76.	15.0	133.	45.0	190.	60.0	247.	60.0	304.	23.1	361.	2.3	418.	60.0	475.	15.0
20.	28.6	77.	15.0	134.	45.0	191.	60.0	248.	60.0	305.	26.1	362.	0.5	419.	60.0	476.	15.0
21.	29.7	78.	15.0	135.	45.0	192.	60.0	249.	60.0	306.	28.9	363.	0.0	420.	60.0	477.	15.0
22.	30.0	79.	15.0	136.	45.0	193.	60.0	250.	60.0	307.	31.6	364.	0.0	421.	59.7	478.	15.0
23.	30.0	80.	15.0	137.	45.0	194.	60.0	251.	60.0	308.	34.2	365.	0.0	422.	59.3	479.	15.0
24.	30.0	81.	15.0	138.	45.0	195.	60.0	252.	60.0	309.	36.6	366.	0.0	423.	58.9	480.	15.0
25.	30.0	82.	15.0	139.	45.0	196.	60.0	253.	60.0	310.	38.9	367.	0.0	424.	58.3	481.	15.0
26.	30.0	83.	15.0	140.	45.0	197.	60.0	254.	60.0	311.	41.1	368.	0.0	425.	57.6	482.	15.0
27.	30.0	84.	15.0	141.	44.7	198.	60.0	255.	60.0	312.	43.1	369.	0.0	426.	56.7	483.	14.4
28.	30.0	85.	15.0	142.	44.1	199.	60.0	256.	60.0	313.	45.0	370.	0.0	427.	55.7	484.	13.3
29.	30.0	86.	15.0	143.	43.4	200.	59.7	257.	59.7	314.	46.8	371.	0.0	428.	54.5	485.	11.3
30.	30.0	87.	15.9	144.	42.2	201.	59.1	258.	59.3	315.	48.5	372.	0.0	429.	53.1	486.	8.5
31.	30.0	88.	17.3	145.	40.7	202.	58.3	259.	58.8	316.	50.1	373.	0.0	430.	51.5	487.	5.2
32.	30.0	89.	18.9	146.	38.9	203.	57.2	260.	58.3	317.	51.5	374.	1.5	431.	49.7	488.	2.1
33.	30.0	90.	20.6	147.	36.8	204.	55.7	261.	57.6	318.	52.8	375.	5.2	432.	47.8	489.	0.2
34.	30.0	91.	22.4	148.	34.6	205.	53.8	262.	56.9	319.	54.0	376.	8.6	433.	45.8	490.	0.0
35.	30.0	92.	24.2	149.	32.6	206.	51.7	263.	56.0	320.	55.1	377.	12.0	434.	43.7	491.	0.0
36.	30.0	93.	25.9	150.	31.0	207.	49.6	264.	54.9	321.	56.1	378.	15.3	435.	41.6	492.	0.0
37.	30.0	94.	27.5	151.	30.1	208.	47.5	265.	53.8	322.	56.9	379.	18.4	436.	39.4	493.	0.0
38.	29.6	95.	28.8	152.	30.0	209.	45.9	266.	52.4	323.	57.7	380.	21.4	437.	37.3	494.	0.0
39.	28.9	96.	29.8	153.	30.0	210.	45.1	267.	50.9	324.	58.3	381.	24.2	438.	35.4	495.	0.0
40.	28.1	97.	30.0	154.	30.0	211.	45.0	268.	49.2	325.	58.9	382.	27.0	439.	33.6	496.	0.0
41.	26.9	98.	30.0	155.	30.0	212.	45.0	269.	47.4	326.	59.3	383.	29.6	440.	32.1	497.	0.0
42.	25.4	99.	30.0	156.	30.0	213.	45.0	270.	45.5	327.	60.0	384.	32.1	441.	30.9	498.	0.0
43.	23.5	100.	30.0	157.	30.0	214.	45.0	271.	43.4	328.	60.0	385.	34.5	442.	30.2	499.	0.0
44.	21.2	101.	30.0	158.	30.0	215.	45.0	272.	41.1	329.	60.0	386.	36.8	443.	30.0	500.	0.0
45.	18.5	102.	30.0	159.	30.0	216.	45.0	273.	38.8	330.	60.0	387.	39.0	444.	30.0	501.	2.4
46.	15.6	103.	30.0	160.	30.0	217.	45.0	274.	36.4	331.	60.0	388.	41.0	445.	30.0	502.	6.3
47.	12.5	104.	30.0	161.	30.0	218.	45.0	275.	34.0	332.	60.0	389.	43.0	446.	30.0	503.	10.0
48.	9.4	105.	30.0	162.	30.0	219.	45.0	276.	31.5	333.	60.0	390.	44.8	447.	30.0	504.	13.5
49.	6.4	106.	30.0	163.	30.0	220.	45.0	277.	29.0	334.	60.0	391.	46.5	448.	30.0	505.	16.8
50.	3.7	107.	30.0	164.	30.0	221.	45.0	278.	26.6	335.	60.0	392.	48.1	449.	30.0	506.	19.9
51.	1.6	108.	30.0	165.	30.0	222.	45.0	279.	24.3	336.	60.0	393.	49.6	450.	30.0	507.	22.8
52.	0.3	109.	30.0	166.	30.0	223.	45.0	280.	22.1	337.	60.0	394.	51.0	451.	30.0	508.	25.5
53.	0.0	110.	30.0	167.	30.0	224.	45.0	281.	20.2	338.	60.0	395.	52.3	452.	30.0	509.	28.0
54.	0.0	111.	30.0	168.	31.0	225.	45.0	282.	18.4	339.	60.0	396.	53.5	453.	30.0	510.	30.3
55.	0.0	112.	30.0	169.	32.5	226.	45.0	283.	17.0	340.	60.0	397.	54.5	454.	30.0	511.	32.4
56.	0.0	113.	30.7	170.	34.3	227.	45.6	284.	15.9	341.	60.0	398.	55.5	455.	30.0	512.	34.4
57.	0.0	114.	31.7	171.	36.2	228.	46.9	285.	15.2	342.	60.0	399.	56.4	456.	30.0	513.	36.2

TIME (SEC)	SPEED (MPH)	TIME (SEC)	SPEED (MPH)	TIME (SEC)	SPEED (MPH)	TIME (SEC)	SPEED (MPH)	TIME (SEC)	SPEED (MPH)	TIME (SEC)	SPEED (MPH)	TIME (SEC)	SPEED (MPH)	TIME (SEC)	SPEED (MPH)	TIME (SEC)	SPEED (MPH)
514.	37.8	574.	24.5	634.	15.7	694.	5.2	754.	50.4	814.	29.1	874.	60.0	934.	4.9	994.	60.0
515.	39.2	575.	26.6	635.	19.6	695.	3.0	755.	51.7	815.	27.7	875.	60.0	935.	7.5	995.	60.0
516.	40.5	576.	28.7	636.	23.4	696.	1.3	756.	53.0	816.	25.4	876.	60.0	936.	10.1	996.	60.0
517.	41.6	577.	30.8	637.	26.9	697.	0.1	757.	54.3	817.	22.0	877.	60.0	937.	12.8	997.	60.0
518.	42.6	578.	32.9	638.	30.1	698.	0.0	758.	55.5	818.	17.6	878.	60.0	938.	15.4	998.	60.0
519.	43.4	579.	34.9	639.	33.4	699.	0.0	759.	56.6	819.	12.5	879.	60.0	939.	17.8	999.	60.0
520.	44.0	580.	36.9	640.	36.4	700.	0.0	760.	57.6	820.	7.4	880.	60.0	940.	20.1	1000.	60.0
521.	44.5	581.	38.8	641.	39.2	701.	0.0	761.	58.5	821.	2.9	881.	60.0	941.	22.1	1001.	59.5
522.	45.0	582.	40.5	642.	41.8	702.	0.0	762.	59.3	822.	0.3	882.	60.0	942.	23.8	1002.	58.7
523.	45.0	583.	42.0	643.	44.2	703.	0.0	763.	60.0	823.	0.0	883.	60.0	943.	25.2	1003.	57.6
524.	45.0	584.	43.4	644.	46.4	704.	0.0	764.	60.0	824.	0.0	884.	60.0	944.	26.5	1004.	56.1
525.	45.0	585.	44.5	645.	48.5	705.	0.0	765.	60.0	825.	0.0	885.	60.0	945.	27.4	1005.	54.0
526.	45.0	586.	45.0	646.	50.3	706.	0.0	766.	60.0	826.	0.0	886.	60.0	946.	28.3	1006.	51.5
527.	45.0	587.	45.0	647.	52.0	707.	0.0	767.	60.0	827.	0.0	887.	59.7	947.	29.0	1007.	48.5
528.	45.0	588.	45.0	648.	53.5	708.	0.0	768.	60.0	828.	0.0	888.	59.2	948.	29.8	1008.	45.1
529.	45.0	589.	45.0	649.	54.9	709.	1.2	769.	60.0	829.	0.0	889.	58.7	949.	30.0	1009.	41.6
530.	45.0	590.	45.0	650.	56.1	710.	3.5	770.	60.0	830.	0.0	890.	58.1	950.	30.0	1010.	38.0
531.	45.0	591.	45.0	651.	57.1	711.	6.4	771.	60.0	831.	0.0	891.	57.4	951.	30.0	1011.	34.7
532.	45.0	592.	45.0	652.	58.0	712.	9.6	772.	60.0	832.	0.0	892.	56.7	952.	30.0	1012.	32.1
533.	45.0	593.	45.0	653.	58.7	713.	12.8	773.	60.0	833.	0.0	893.	55.8	953.	30.0	1013.	30.4
534.	45.0	594.	45.0	654.	59.3	714.	15.9	774.	60.0	834.	0.9	894.	54.8	954.	30.0	1014.	30.0
535.	45.0	595.	45.0	655.	60.0	715.	18.8	775.	60.0	835.	4.0	895.	53.7	955.	30.0	1015.	30.0
536.	45.0	596.	45.0	656.	60.0	716.	21.3	776.	60.0	836.	6.9	896.	52.4	956.	30.0	1016.	30.0
537.	45.0	597.	45.0	657.	60.0	717.	23.5	777.	60.0	837.	9.8	897.	50.9	957.	30.0	1017.	30.0
538.	44.4	598.	45.0	658.	60.0	718.	25.2	778.	60.0	838.	12.6	898.	49.3	958.	30.0	1018.	30.0
539.	43.9	599.	45.0	659.	60.0	719.	26.7	779.	60.0	839.	15.3	899.	47.6	959.	30.0	1019.	30.0
540.	43.0	600.	45.0	660.	60.0	720.	27.8	780.	59.6	840.	17.9	900.	45.7	960.	30.0	1020.	30.0
541.	41.8	601.	45.0	661.	60.0	721.	28.7	781.	59.1	841.	20.4	901.	43.6	961.	30.0	1021.	30.0
542.	40.2	602.	44.5	662.	60.0	722.	29.6	782.	58.4	842.	22.8	902.	41.4	962.	30.0	1022.	30.0
543.	38.2	603.	43.7	663.	60.0	723.	30.0	783.	57.6	843.	25.2	903.	39.0	963.	30.0	1023.	30.0
544.	35.8	604.	42.7	664.	60.0	724.	30.0	784.	56.5	844.	27.4	904.	36.6	964.	30.0	1024.	30.0
545.	33.1	605.	41.4	665.	60.0	725.	30.0	785.	55.1	845.	29.6	905.	34.0	965.	30.7	1025.	30.0
546.	30.1	606.	39.8	666.	60.0	726.	30.0	786.	53.4	846.	31.7	906.	31.3	966.	31.8	1026.	30.0
547.	26.9	607.	37.8	667.	60.0	727.	30.0	787.	51.5	847.	33.7	907.	28.6	967.	33.1	1027.	30.0
548.	23.7	608.	35.3	668.	60.0	728.	30.0	788.	49.3	848.	35.7	908.	25.8	968.	34.5	1028.	30.0
549.	20.7	609.	32.5	669.	60.0	729.	30.0	789.	46.8	849.	37.5	909.	22.9	969.	36.0	1029.	30.0
550.	18.1	610.	29.2	670.	60.0	730.	30.0	790.	44.3	850.	39.3	910.	20.1	970.	37.6	1030.	29.4
551.	16.1	611.	25.6	671.	59.6	731.	30.0	791.	41.6	851.	41.0	911.	17.3	971.	39.3	1031.	28.5
552.	15.1	612.	21.8	672.	59.0	732.	30.0	792.	38.9	852.	42.6	912.	14.6	972.	41.0	1032.	27.2
553.	15.0	613.	17.8	673.	58.3	733.	30.0	793.	36.3	853.	44.2	913.	12.0	973.	42.8	1033.	25.4
554.	15.0	614.	13.8	674.	57.4	734.	30.0	794.	34.0	854.	45.6	914.	9.5	974.	44.6	1034.	22.9
555.	15.0	615.	9.9	675.	56.5	735.	30.0	795.	32.1	855.	47.0	915.	7.2	975.	46.3	1035.	19.9
556.	15.0	616.	6.4	676.	55.3	736.	30.0	796.	30.7	856.	48.4	916.	5.2	976.	48.1	1036.	16.4
557.	15.0	617.	3.5	677.	54.0	737.	30.0	797.	30.0	857.	49.6	917.	3.4	977.	49.8	1037.	12.5
558.	15.0	618.	1.3	678.	52.4	738.	30.0	798.	30.0	858.	50.8	918.	1.9	978.	51.5	1038.	8.6
559.	15.0	619.	0.1	679.	50.6	739.	30.5	799.	30.0	859.	51.9	919.	0.8	979.	53.0	1039.	5.0
560.	15.0	620.	0.0	680.	48.5	740.	31.4	800.	30.0	860.	52.9	920.	0.2	980.	54.6	1040.	2.1
561.	15.0	621.	0.0	681.	46.2	741.	32.4	801.	30.0	861.	53.8	921.	0.0	981.	56.0	1041.	0.3
562.	15.0	622.	0.0	682.	43.6	742.	33.6	802.	30.0	862.	54.7	922.	0.0	982.	57.2	1042.	0.0
563.	15.0	623.	0.0	683.	40.8	743.	34.8	803.	30.0	863.	55.5	923.	0.0	983.	58.4	1043.	0.0
564.	15.0	624.	0.0	684.	37.8	744.	36.0	804.	30.0	864.	56.3	924.	0.0	984.	59.3	1044.	0.0
565.	15.0	625.	0.0	685.	34.6	745.	37.4	805.	30.0	865.	56.9	925.	0.0	985.	60.0	1045.	0.0
566.	15.0	626.	0.0	686.	31.3	746.	38.7	806.	30.0	866.	57.5	926.	0.0	986.	60.0	1046.	0.0
567.	15.0	627.	0.0	687.	27.9	747.	40.2	807.	30.0	867.	58.1	927.	0.0	987.	60.0	1047.	0.0
568.	15.0	628.	0.0	688.	24.3	748.	41.6	808.	30.0	868.	58.5	928.	0.0	988.	60.0	1048.	0.0
569.	15.9	629.	0.0	689.	20.8	749.	43.1	809.	30.0	869.	58.9	929.	0.0	989.	60.0	1049.	0.0
570.	17.3	630.	0.0	690.	17.3	750.	44.6	810.	30.0	870.	59.3	930.	0.0	990.	60.0	1050.	0.0
571.	18.9	631.	2.6	691.	14.0	751.	46.0	811.	30.0	871.	60.0	931.	0.0	991.	60.0	1051.	0.0
572.	20.7	632.	7.1	692.	10.7	752.	47.5	812.	30.0	872.	60.0	932.	0.8	992.	60.0	1052.	0.0
573.	22.6	633.	11.5	693.	7.8	753.	48.9	813.	30.0	873.	60.0	933.	2.7	993.	60.0	1053.	0.0
																1054.	0.0

4.4 STEADY STATE TEST DATA

Exhaust emission data accumulated for the 15 mph, 30 mph, 45 mph and 60 mph steady state conditions are included in this section. Data are presented in grams per vehicle mile. Oxides of nitrogen are not corrected for humidity.

Below are the descriptions of the headings used in this section. Hydrocarbon, carbon monoxide, carbon dioxide and oxides of nitrogen are described in section 4.2.

HEADING	DESCRIPTION
STEADY STATE - 15	Calculated results of test vehicle emissions at 15 mph cruise and road load horsepower. The sample was collected for two minutes.
STEADY STATE - 30	Calculated results of vehicle emissions at 30 mph cruise and road load horsepower. Sample time is the same as described above.
STEADY STATE - 45	Calculated results of vehicle emissions at 45 mph cruise and road load horsepower. Sample time is the same as described above.
STEADY STATE - 60	Calculated results of vehicle emissions at 60 mph cruise and road load horsepower. Sample time is the same as described above.

		----STEADY STATE-15 MPH----				----STEADY STATE-30 MPH----				----STEADY STATE-45 MPH----				----STEADY STATE-60 MPH----			
CAR#	RUN#	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX
0170	0446	2.86	80.4	745.2	0.74	1.43	21.5	494.5	0.94	0.87	7.5	467.2	2.65	0.52	4.3	460.6	4.24
0156	0427	3.32	51.6	679.1	0.64	2.79	26.4	423.8	0.36	2.56	15.6	421.0	5.08	1.01	9.9	419.6	8.83
0046	0189	1.70	29.5	555.6	0.56	2.01	39.6	402.5	0.97	1.64	14.0	407.2	4.34	1.60	13.2	395.2	6.67
0046	0206R	2.28	40.0	523.0	0.44	1.83	37.1	401.9	0.78	1.70	20.0	396.7	3.26	1.64	18.2	406.1	6.15
0112	0340	3.40	53.1	468.8	0.36	2.46	38.0	361.9	0.67	4.00	22.0	426.3	6.19	1.59	7.4	454.2	9.96
0081	0271	1.40	33.3	449.5	0.46	0.70	19.6	455.4	0.75	0.46	9.7	486.3	2.28	0.14	4.0	588.0	4.46
0111	0353	2.46	77.2	330.0	0.20	1.61	32.5	333.0	0.37	1.27	10.6	400.3	1.88	1.16	13.2	387.9	2.95
0065	0242	4.18	71.4	260.7	0.12	2.54	23.2	299.6	0.97	1.62	9.1	426.0	3.83	1.90	25.5	350.6	5.35
0124	0371	5.32	109.4	460.5	0.16	3.78	88.3	344.5	0.26	3.87	98.8	343.8	0.96	3.60	85.3	373.4	2.32
0151	0415	5.36	157.7	379.3	0.26	3.70	103.1	285.6	0.42	4.89	126.5	355.8	1.19	4.06	99.2	422.8	3.08
0076	0269	4.24	62.9	401.9	0.48	1.66	9.9	295.1	2.11	1.47	13.4	254.6	2.47	1.15	6.8	260.5	4.51
0095	0328	20.26	255.7	351.5	0.06	3.93	99.1	382.4	0.30	3.84	66.2	448.2	0.98	2.52	47.1	444.2	1.97
0069	0247	3.00	94.4	663.7	0.76	2.90	73.7	429.0	2.31	2.25	30.7	482.9	6.06	1.56	11.9	502.0	10.41
0131	0402	1.36	41.2	650.6	0.58	1.24	18.9	509.0	2.49	1.26	14.6	503.0	5.53	1.15	4.4	533.9	10.06
0092	0311	5.06	72.1	553.4	0.40	2.29	18.6	469.1	0.85	5.23	78.4	427.1	0.92	4.06	92.5	429.0	1.33
0169	0444	6.56	110.7	394.0	0.24	3.76	58.6	372.2	0.62	3.78	69.9	356.2	1.59	3.92	103.2	358.7	2.36
0001	0001	8.94	202.7	420.5	0.44	2.40	36.9	434.0	2.20	1.30	14.2	375.4	3.22	1.13	16.2	366.2	2.30
0041	0165	2.60	45.0	504.6	0.50	1.93	8.1	372.0	2.38	0.83	2.8	410.9	3.27	1.20	8.4	425.7	7.16
0049	0133	1.50	13.8	496.0	0.52	1.65	7.6	329.9	1.98	0.89	3.2	374.7	4.59	1.55	12.6	374.0	6.30
0048	0184	1.14	7.8	544.1	0.62	1.03	3.7	341.2	1.95	1.68	2.7	374.0	4.42	1.27	12.3	348.1	1.58
0099	0315	2.34	75.4	357.3	0.36	1.21	26.8	237.4	1.51	1.28	32.3	262.9	2.72	1.06	34.1	247.1	2.51
0125	0365	3.12	77.8	572.1	0.34	1.83	23.6	421.9	0.95	1.57	7.0	440.2	4.10	1.39	9.2	434.8	6.59
0013	0052	1.62	19.1	604.8	0.50	1.76	4.3	341.8	1.86	1.43	4.0	378.2	5.42	2.01	27.1	386.7	6.28
0062	0235	2.04	16.6	543.3	1.00	2.15	3.9	380.1	5.10	1.92	5.7	421.7	9.08	2.04	26.9	444.2	11.06
0167	0439	2.30	100.7	424.4	0.38	2.10	39.8	284.9	1.98	1.36	4.3	349.0	5.36	1.05	5.1	362.3	8.37
0168	0442	2.06	22.0	442.9	0.42	1.40	2.3	353.3	4.60	1.25	5.1	387.3	9.19	1.19	10.0	384.0	10.19
0005	0035	2.24	55.7	452.2	0.42	1.66	18.9	347.9	1.45	1.20	7.2	364.9	6.00	1.17	9.2	394.7	9.00
0003	0193	1.04	33.0	529.5	0.26	0.89	7.1	327.0	0.52	1.36	9.7	393.0	3.08	1.18	14.8	371.6	5.37
0060	0232	1.82	15.3	500.7	0.54	1.39	2.9	346.1	1.66	1.71	2.1	360.1	7.34	1.62	2.4	405.2	11.80
0007	0370	3.66	127.1	739.8	1.44	1.39	17.4	624.7	9.47	1.80	8.7	707.4	7.20	1.40	10.4	775.6	10.69
0014	0112	0.64	3.6	495.5	0.60	0.81	3.5	435.6	2.99	0.84	2.8	395.0	0.83	0.57	2.9	340.8	6.25
0136	0383	12.52	267.4	247.5	0.06	8.17	200.3	134.3	0.04	2.30	125.8	188.9	0.52	0.78	30.0	271.7	7.17
0152	0420	2.98	53.5	410.6	0.40	2.14	36.4	335.3	0.68	2.85	36.6	383.7	3.10	2.05	36.1	426.6	3.92
0152	0429R	2.82	51.6	424.5	0.38	1.81	34.2	368.4	0.76	1.80	37.2	388.0	1.73	1.48	33.5	372.6	2.59
0016	0126	1.60	8.0	650.6	8.46	0.72	3.0	450.2	1.12	0.71	4.6	479.9	0.96	0.40	3.9	494.6	3.28
0039	0159	3.14	14.5	463.8	0.46	2.18	9.5	317.4	1.43	2.80	31.7	324.2	3.00	2.41	24.1	340.4	4.66
0083	0274	1.60	23.6	545.5	0.60	1.36	8.2	371.6	3.37	1.55	7.4	413.1	6.72	0.51	19.3	451.8	6.57
0097	0377	1.18	39.0	616.7	0.36	1.77	7.0	454.6	2.32	1.84	5.7	465.0	4.35	1.10	7.2	468.9	5.50
0021	0132	4.34	119.4	392.7	0.30	4.10	74.1	364.5	0.68	4.12	76.9	407.6	1.45	4.54	95.3	401.7	1.53
0024	0134	3.18	44.6	306.5	0.20	1.40	24.9	251.5	0.55	1.72	13.0	290.7	3.68	2.49	18.4	331.5	7.78
0061	0236	1.62	31.3	589.8	0.56	2.25	17.4	379.6	2.70	1.99	27.6	428.0	4.44	1.13	27.3	431.7	5.21
0109	0338	2.46	8.3	541.9	0.80	2.52	7.3	369.1	2.28	2.14	8.3	390.6	4.89	1.78	10.7	417.8	7.31
0025	0139	4.76	2.9	406.4	1.40	3.65	9.5	402.8	4.83	3.88	24.6	398.9	6.94	3.69	27.7	448.8	9.25
0070	0245	7.06	144.8	379.6	0.26	3.37	52.3	307.1	0.47	2.84	35.0	321.7	1.64	2.60	42.7	296.3	1.88
0091	0284	9.06	182.9	718.7	0.46	5.89	138.1	424.7	0.40	3.60	83.5	364.0	0.75	2.62	47.3	399.8	1.50
0089	0286	7.08	75.5	408.8	0.30	3.84	37.5	219.4	0.92	3.73	54.2	312.6	2.30	3.15	35.1	364.1	4.37
0031	0145	6.44	133.3	171.9	0.04	3.34	61.1	214.2	0.57	2.34	25.6	274.3	3.04	2.02	23.3	287.4	4.72
0055	0224	3.12	42.2	285.8	0.54	2.37	11.0	267.3	1.35	2.30	31.2	293.2	2.76	1.86	20.8	325.0	5.86
0080	0270	5.66	44.5	407.6	0.46	1.97	44.5	236.0	1.43	3.08	38.0	284.8	3.05	2.60	25.9	259.4	5.50
0132	0378	1.98	51.2	327.3	0.58	1.64	26.6	248.4	1.30	1.05	7.7	317.3	4.10	0.77	4.1	294.0	4.87

CAR#	RUN#	----STEADY STATE-15 MPH---- HC	CO	CO2	NOX	----STEADY STATE-30 MPH---- HC	CO	CO2	NOX	----STEADY STATE-45 MPH---- HC	CO	CO2	NOX	----STEADY STATE-60 MPH---- HC	CO	CO2	NOX
0085	0275	3.66	87.9	270.9	0.50	2.32	60.0	178.5	0.77	2.01	48.0	244.7	1.94	2.04	37.7	211.6	2.22
0087	0277	3.78	73.3	202.1	0.22	1.82	20.7	253.8	1.24	1.24	3.0	297.4	3.96	1.29	5.4	284.7	5.96
0108	0333	6.14	50.6	428.5	0.44	2.97	15.7	333.8	2.41	2.66	12.5	371.6	4.82	2.75	14.0	389.9	8.12
0050	0188	8.32	115.0	237.1	0.16	3.61	14.3	353.7	2.70	3.44	33.2	382.2	1.32	3.04	33.9	395.7	8.47
0100	0382	10.02	111.7	299.6	0.79	4.07	47.3	332.8	1.30	2.30	47.6	371.7	9.28	3.58	38.1	383.1	4.27
0100	0387R	4.16	105.2	278.9	0.26	2.45	54.0	337.4	1.20	3.22	52.5	343.7	5.50	2.13	42.5	368.6	4.19
0162	0434	12.84	58.0	289.5	0.76	10.29	40.0	315.4	2.31	10.06	21.9	403.2	6.24	8.54	15.3	413.3	8.46
0154	0425	4.14	89.3	470.5	0.40	2.94	64.7	322.0	0.43	3.31	52.4	354.2	1.59	2.45	32.6	401.1	2.84
0064	0237	4.36	24.8	376.9	0.46	2.25	15.8	268.8	0.89	2.46	33.1	292.1	1.58	1.99	23.2	300.8	2.70
0140	0394	11.44	12.6	300.3	0.52	11.71	20.6	294.1	1.14	11.07	44.8	337.5	4.14	9.31	42.2	328.8	3.02
0020	0131	6.32	94.9	469.9	0.38	2.96	30.7	348.7	0.79	2.14	16.8	389.8	1.84	2.86	51.1	363.7	1.26
0174	0465	16.98	194.0	387.7	0.30	5.24	96.7	247.9	0.28	4.22	88.6	304.0	0.99	3.59	62.7	353.0	2.54
0006	0036	13.58	3.4	432.6	0.64	2.12	2.3	346.2	1.84	2.00	24.4	410.9	4.04	2.85	60.3	389.2	1.28
0164	0450	1.22	5.9	731.6	0.46	1.01	6.2	521.3	1.81	1.24	13.8	536.7	4.95	1.32	19.1	558.3	8.39
0037	0153	8.96	57.1	424.0	0.30	1.56	9.5	423.3	2.43	1.30	5.6	459.8	6.04	1.15	12.5	469.1	8.31
0127	0366	2.80	75.3	285.3	0.08	2.05	28.9	293.1	1.01	2.21	26.9	320.0	3.79	2.29	33.4	318.4	5.01
0130	0373	1.34	20.2	258.3	0.24	0.77	2.5	166.9	0.96	0.54	2.2	156.3	1.36	0.35	3.6	150.0	1.78
0072	0250	5.14	187.5	405.1	0.28	2.17	55.8	418.6	0.60	0.29	2.9	512.3	2.81	0.85	15.7	450.9	5.29
0117	0348	2.52	50.4	335.0	0.50	1.42	9.2	287.3	2.62	1.04	3.9	338.8	5.35	1.12	11.6	365.6	7.77
0135	0379	1.86	31.8	343.9	1.56	0.97	1.0	146.5	3.62	1.04	4.8	354.1	6.66	0.88	9.1	349.2	5.00
0088	0281	7.26	12.4	471.6	1.80	2.00	19.5	338.2	1.71	2.42	19.0	400.6	6.32	2.56	43.5	391.8	7.55
0086	0276	2.56	24.8	480.6	0.64	1.65	4.6	419.4	3.95	1.75	7.1	460.8	6.73	2.64	27.5	498.7	10.22
0026	0138	3.66	90.2	454.9	0.12	2.77	30.9	290.0	0.82	1.43	3.9	331.1	3.26	1.59	9.5	321.7	4.50
0176	0475	7.74	164.2	230.3	0.12	3.58	81.2	186.8	0.21	2.06	64.9	207.3	0.59	1.83	64.0	194.4	1.07
0033	0146	2.30	53.4	234.4	0.12	2.14	22.0	203.5	1.38	1.90	7.3	229.8	5.12	1.58	4.5	239.1	8.69
0068	0246	1.24	15.4	638.8	0.84	0.55	5.5	478.5	1.75	1.43	6.5	429.6	6.46	1.40	31.9	423.7	7.06
0067	0251	1.76	56.4	211.1	0.28	0.72	17.7	203.3	2.18	1.05	1.7	229.6	5.57	1.04	1.5	254.7	9.59
0071	0254	2.58	74.6	251.2	0.04	1.54	17.8	216.0	1.50	1.24	10.3	203.1	2.92	1.20	15.4	229.2	4.44
0133	0376	0.68	4.1	359.0	0.64	0.79	6.5	247.6	1.69	0.84	4.7	238.7	3.98	0.69	6.5	232.2	4.51
0133	0381R	0.56	3.6	334.5	0.56	0.59	3.5	183.5	1.19	0.82	3.3	212.3	3.32	0.76	6.4	242.5	4.87
0004	0032	1.00	6.3	405.5	0.74	1.18	3.5	302.2	3.07	1.18	2.2	306.0	6.20	0.88	2.5	287.3	8.06
0015	0078	0.94	4.5	770.3	2.50	1.34	3.5	417.4	2.79	1.90	5.8	450.7	6.12	2.24	16.0	512.1	9.97
0023	0136	3.00	98.5	413.4	0.26	1.92	20.0	369.3	0.82	2.84	8.0	375.8	6.74	2.65	12.2	396.5	8.51
0134	0380	0.64	7.8	426.1	0.66	1.21	1.5	304.5	2.76	1.18	2.6	363.6	4.06	0.76	3.3	359.1	4.80
0134	0390R	1.08	6.4	445.7	0.76	1.33	0.7	314.8	3.24	1.12	2.5	345.0	4.78	0.74	3.6	366.4	4.31
0146	0405	1.80	3.6	552.0	0.42	1.46	4.8	475.7	0.43	1.86	3.8	423.8	4.55	1.69	5.2	429.1	11.07
0010	0042	4.42	131.0	366.8	0.10	2.31	21.2	394.9	1.64	2.62	33.6	416.9	2.66	3.43	64.0	426.5	0.47
0012	0051	1.86	29.2	503.1	0.46	1.85	5.3	384.4	2.63	2.42	4.4	392.1	7.04	1.94	4.8	400.8	9.22
0139	0391	3.86	33.3	407.3	0.32	2.42	5.5	438.1	5.25	2.76	11.8	443.0	9.67	2.37	8.3	476.9	14.23
0009	0039	1.04	14.1	485.8	0.88	1.35	19.8	279.6	1.48	1.79	11.8	325.5	6.44	1.93	17.2	362.6	8.76
0040	0166	2.24	8.3	412.5	0.58	1.45	3.6	385.2	1.46	1.53	2.8	387.7	2.62	0.72	3.6	403.2	3.66
0093	0313	2.54	39.5	487.2	0.48	1.11	5.0	492.2	2.00	1.10	3.5	376.9	1.58	0.59	4.1	367.5	2.57
0114	0343	1.22	30.2	384.6	0.34	1.64	20.7	253.9	1.15	1.34	9.1	292.7	2.87	0.98	10.9	313.0	5.25
0115	0350	12.14	199.0	298.1	0.04	3.12	87.7	321.8	0.43	2.41	27.2	402.3	2.60	2.54	30.2	407.8	4.97
0017	0129	1.88	53.4	516.9	0.34	0.80	38.4	501.8	0.41	0.50	35.7	547.8	0.67	0.39	50.2	167.5	0.89
0063	0238	1.56	74.3	472.5	0.20	1.90	54.2	331.4	0.50	2.33	20.6	371.9	4.32	1.97	21.5	372.7	6.33
0075	0253	39.32	40.3	388.8	0.54	27.56	28.0	260.5	0.83	32.99	24.9	319.6	3.15	17.03	11.7	358.7	5.86
0137	0388	19.00	119.4	408.8	0.40	12.48	20.4	461.7	1.62	11.21	21.7	528.0	3.69	9.71	8.4	596.4	6.31
0144	0406	1.66	53.7	445.6	0.22	1.41	22.9	388.9	0.75	2.18	12.9	409.3	4.15	1.38	10.9	337.1	3.50
0030	0143	3.70	94.7	262.3	0.10	3.16	59.7	288.9	0.74	2.72	21.9	361.1	4.92	2.73	24.1	390.0	7.84

CAR#	RUN#	----STEADY STATE-15 MPH---- HC	CO	CO2	NOX	----STEADY STATE-30 MPH---- HC	CO	CO2	NOX	----STEADY STATE-45 MPH---- HC	CO	CO2	NOX	----STEADY STATE-60 MPH---- HC	CO	CO2	NOX
0066	0243	5.46	78.2	324.3	0.10	5.85	23.4	285.0	0.71	2.88	31.9	330.6	3.33	2.18	12.8	379.4	8.38
0145	0404	16.82	128.7	264.0	0.20	10.21	51.4	245.3	0.98	9.40	32.3	314.3	3.58	8.91	25.9	372.4	5.85
0153	0418	2.34	46.5	385.6	0.24	2.50	12.5	326.8	1.88	2.32	20.9	353.9	3.78	1.92	27.4	363.5	4.23
0110	0344	4.00	87.4	388.0	0.30	1.54	16.3	374.1	1.10	1.16	6.4	336.9	2.24	1.68	9.4	360.2	5.01
0113	0346	6.82	109.1	324.2	0.44	3.60	28.6	369.3	2.76	2.76	23.9	387.4	4.96	2.93	24.1	408.9	6.22
0110	0356R	2.80	47.4	504.4	0.68	1.12	11.6	477.3	2.30	2.10	14.7	317.0	2.84	1.57	9.6	340.4	5.45
0044	0173	9.26	246.0	363.6	0.20	4.11	110.3	303.7	0.36	2.74	40.6	395.8	1.34	2.82	53.9	413.1	1.92
0047	0174	60.00	265.9	246.1	0.28	41.96	89.5	240.0	1.05	39.52	38.2	321.6	5.44	41.38	41.7	333.6	6.09
0106	0335	2.74	49.2	371.3	0.14	1.80	16.9	340.7	1.90	2.13	30.2	328.5	1.26	1.54	21.6	314.6	3.81
0143	0398	4.22	67.6	275.4	0.18	3.02	53.0	282.7	0.41	3.43	76.2	316.1	0.56	4.04	99.0	342.7	0.74
0058	0223	3.54	61.8	369.1	0.32	2.53	25.2	336.8	1.23	2.77	50.4	376.1	1.83	3.23	89.9	373.6	2.02
0058	0229R	3.26	65.7	354.2	0.22	2.37	20.7	362.9	1.88	2.61	51.5	376.8	1.90	3.44	95.7	379.7	2.20
0090	0282	9.88	195.6	271.9	0.14	4.53	86.5	269.7	0.40	2.48	19.7	386.7	2.72	2.85	37.8	397.0	4.21
0096	0312	9.08	143.6	272.2	0.14	7.17	92.7	272.6	0.38	2.49	28.3	386.3	2.75	4.24	51.3	371.0	2.83
0178	0473	2.52	44.6	329.7	0.22	1.26	14.7	309.1	1.23	1.31	18.3	338.8	3.47	1.44	25.2	362.4	5.29
0002	0233	4.32	67.0	296.5	0.28	2.50	41.7	234.7	1.20	2.04	43.3	304.4	3.53	1.96	53.2	336.9	5.02
0181	0479	4.12	100.0	279.0	0.30	1.96	44.9	296.2	1.34	2.63	38.4	356.7	2.66	2.37	13.0	366.3	5.20
0161	0437	1.80	2.1	513.0	1.44	1.32	19.1	428.6	3.07	0.99	22.3	487.9	5.07	0.46	18.1	530.3	5.25
0038	0158	1.10	4.1	493.8	0.66	0.54	2.0	429.7	0.94	0.96	3.1	432.0	6.46	0.89	4.7	450.7	8.62
0056	0217	3.24	79.8	340.5	0.22	1.03	7.9	396.6	1.08	1.35	3.9	408.9	3.80	1.13	6.5	431.2	5.40
0119	0352	18.46	151.2	339.8	0.10	6.09	82.7	324.7	0.96	5.66	137.9	310.0	1.24	3.04	117.4	332.3	2.43
0082	0273	1.70	22.5	580.7	0.44	1.47	16.9	417.2	1.42	1.51	6.1	467.9	4.16	0.82	12.1	524.2	5.96
0078	0256	6.16	144.3	361.0	0.26	3.81	43.3	393.4	2.02	3.66	50.8	433.2	4.09	4.23	51.4	487.3	1.47
0094	0325	3.54	39.2	260.1	0.64	2.05	5.4	278.8	2.27	1.98	5.4	343.9	3.60	1.94	8.6	385.1	5.32
0182	0477	0.48	11.4	862.1	0.96	0.76	11.4	524.2	1.58	0.82	10.9	475.3	4.23	0.71	9.7	488.5	7.05
0104	0316	1.86	34.1	665.5	0.56	1.23	7.4	465.7	1.15	1.49	8.1	436.2	3.48	2.01	12.6	437.0	6.11
0104	0322R	1.82	32.6	682.7	0.58	1.23	7.1	441.2	1.03	1.56	8.3	421.7	3.38	1.77	11.3	436.1	6.32
0022	0135	1.84	32.0	589.8	0.49	1.59	10.8	401.6	1.58	2.26	20.0	408.4	4.70	2.67	36.2	284.5	6.56
0148	0410	0.92	17.9	457.3	0.66	1.42	10.4	306.3	1.94	2.05	31.2	352.2	4.34	1.52	9.5	368.2	8.19
0077	0255	6.14	115.7	338.0	0.30	2.80	40.1	299.5	0.40	1.77	14.8	346.9	1.93	2.20	29.5	325.5	3.37
0054	0211	5.76	37.2	264.2	0.20	2.75	6.9	378.8	4.03	2.47	16.2	429.8	7.44	3.03	36.0	462.8	9.39
0173	0463	15.56	156.8	690.4	2.86	6.07	79.7	335.9	1.95	4.78	66.9	373.2	4.71	4.94	82.4	393.2	5.52
0101	0321	1.42	19.7	117.8	0.06	0.61	3.2	103.0	0.82	0.67	5.5	98.5	1.72	0.50	4.1	96.7	2.26
0166	0456	7.82	124.5	255.6	0.12	3.54	59.2	222.3	0.88	3.08	57.4	220.9	0.74	3.36	76.9	244.8	2.31
0183	0478	5.20	31.3	412.9	1.34	2.42	15.0	301.2	2.20	2.63	16.8	354.8	4.53	2.75	16.8	349.3	5.84
0179	0432	6.06	37.1	459.9	0.72	2.57	3.0	635.3	3.15	2.66	14.4	487.3	5.49	2.46	17.2	497.1	6.89
0159	0433	4.08	68.8	509.3	0.46	2.78	16.1	424.5	2.12	2.10	14.0	417.5	4.40	2.11	20.8	472.5	5.02
0126	0374	2.18	64.5	410.4	0.14	1.17	17.8	366.7	0.75	0.92	4.7	376.8	3.48	0.72	3.7	406.6	5.26
0128	0367	2.30	64.4	439.6	0.36	1.23	10.8	322.4	1.39	1.26	3.1	332.8	4.62	1.01	3.5	326.7	6.09
0129	0369	3.90	86.6	442.9	1.12	2.39	23.3	409.7	5.19	1.96	5.3	436.7	11.22	1.74	2.9	465.7	15.82
0036	0148	2.30	32.0	397.3	0.36	2.15	5.5	352.2	3.31	2.04	7.2	379.6	6.40	2.15	13.7	392.7	8.22
0043	0170	0.68	3.4	373.1	0.50	0.58	3.5	326.0	1.12	0.94	4.2	348.5	3.13	0.87	9.3	349.5	4.44
0158	0431	2.54	64.4	463.3	0.40	3.44	61.1	317.1	0.87	3.22	48.8	352.2	2.84	2.81	33.2	444.0	7.78
0107	0334	1.42	1.7	497.0	0.56	1.97	4.4	415.5	15.43	1.90	26.7	443.2	6.38	2.66	38.6	445.5	10.06
0079	0261	7.64	144.3	261.7	0.26	1.48	12.2	352.9	0.94	0.86	4.0	389.9	2.06	0.43	3.5	420.7	2.78
0138	0393	3.16	81.4	333.7	0.32	1.91	25.2	318.2	2.02	1.58	18.6	343.4	4.27	1.59	31.3	334.5	4.91
0118	0355	2.58	77.8	480.3	0.06	1.98	21.6	380.7	0.92	1.38	10.0	423.3	3.24	1.31	10.4	450.9	6.20
0027	0137	3.10	81.1	693.5	0.44	2.77	48.2	437.9	0.65	2.52	48.6	387.2	2.39	2.25	41.2	460.6	4.39
0029	0142	3.50	89.9	446.6	0.20	2.00	61.5	394.4	0.68	1.75	7.9	458.9	4.93	1.44	5.2	472.4	8.21
0147	0409	2.08	42.2	418.4	0.24	1.47	14.4	378.4	1.06	1.90	21.8	329.5	2.02	1.24	4.9	349.2	4.62

CAR#	RUN#	----STEADY STATE-15 MPH---- HC	CO	CO2	NOX	----STEADY STATE-30 MPH---- HC	CO	CO2	NOX	----STEADY STATE-45 MPH---- HC	CO	CO2	NOX	----STEADY STATE-60 MPH---- HC	CO	CO2	NOX
0018	0130	3.43	18.4	465.7	0.36	2.24	18.1	358.7	1.25	1.98	13.2	396.9	4.25	2.58	37.1	409.3	5.58
0028	0144	1.30	34.5	542.3	0.30	1.51	5.7	372.1	2.63	1.73	7.4	398.8	7.03	1.54	17.0	416.0	8.39
0084	0272	3.80	42.2	592.1	0.46	1.90	11.6	525.4	1.44	1.94	12.9	533.1	4.02	1.97	14.1	616.9	7.10
0150	0413	5.82	91.2	459.1	0.58	2.87	31.0	532.0	3.93	2.36	15.4	574.3	9.37	4.05	7.8	633.5	13.87
0034	0149	4.98	73.5	296.4	0.16	2.30	5.2	331.9	2.09	1.98	4.6	370.1	5.04	2.25	20.5	378.0	1.75
0155	0428	6.38	110.4	276.9	0.24	2.92	26.5	346.3	1.44	1.76	4.7	393.3	4.24	1.98	11.7	391.4	6.38
0103	0319	3.74	65.3	223.7	0.38	2.34	21.6	300.6	2.48	1.64	6.7	303.3	4.67	1.25	11.4	343.7	5.63
0123	0351	6.26	73.5	389.4	0.62	2.30	13.9	360.4	2.67	1.67	14.0	402.2	5.47	1.64	18.0	423.4	8.63
0171	0460	8.66	106.9	426.1	0.26	4.07	40.1	379.7	1.35	2.96	52.7	399.7	2.31	3.92	120.9	413.8	0.66
0180	0480	15.26	137.2	296.4	0.12	4.29	60.5	247.5	0.49	1.58	19.1	241.9	2.04	1.63	19.5	270.6	3.95
0177	0474	4.30	89.2	388.2	0.24	1.71	19.2	341.9	0.95	1.67	13.3	386.7	2.92	1.59	12.0	411.5	5.98
0163	0435	0.92	2.0	598.5	0.54	1.40	0.7	445.2	7.18	1.84	7.3	449.0	6.68	1.55	7.6	467.7	9.01
0105	0331	1.84	29.6	440.2	0.42	1.96	15.1	359.5	1.63	2.38	14.5	382.5	5.61	2.22	22.9	379.1	6.77
0142	0397	8.32	71.5	228.6	0.36	1.89	13.9	285.4	2.14	1.02	8.9	341.5	4.45	0.85	9.6	356.3	6.44
0045	0194	18.70	96.6	257.7	0.20	18.27	119.5	188.7	0.27	18.20	97.2	207.3	0.57	20.60	98.5	223.3	1.02
0073	0264	3.12	60.0	226.9	0.10	1.40	2.3	293.0	0.95	1.41	2.6	332.3	3.71	1.45	5.3	364.1	6.19
0141	0396	0.92	64.2	177.1	0.20	0.54	18.8	260.2	2.69	1.86	64.1	270.4	2.32	1.40	55.7	305.5	3.74
0157	0424	3.30	82.1	282.5	0.42	2.42	64.5	196.7	0.40	2.54	64.3	232.6	1.10	2.84	65.8	278.9	2.27
0102	0314	0.52	1.8	304.9	0.48	0.95	9.2	256.8	1.17	0.83	3.9	331.5	2.61	0.89	4.0	323.6	1.20
0098	0329	1.16	19.7	312.5	0.40	1.43	25.2	241.8	1.03	1.38	22.8	215.8	1.82	1.40	24.9	242.1	3.08
0032	0154	0.98	6.5	332.5	0.54	0.51	3.5	241.6	1.32	0.49	2.9	208.7	2.40	0.57	4.4	239.3	4.40
0074	0252	23.42	4.9	343.6	2.48	16.65	3.3	269.0	4.19	2.90	10.5	255.4	2.45	0.35	1.8	271.1	3.92
0019	0133	1.40	34.6	270.6	0.34	0.76	7.5	238.5	1.22	1.15	23.0	197.7	2.12	0.81	12.3	238.1	3.93
0035	0147	6.36	118.0	150.9	0.10	2.19	66.7	151.4	0.43	1.58	42.3	203.8	2.44	1.43	35.2	244.6	5.14
0053	0212	5.88	135.6	202.0	0.14	2.19	72.9	164.8	0.29	2.23	66.5	160.3	0.74	1.31	32.5	222.4	3.05
0053	0216	7.58	127.0	195.8	0.12	2.19	75.2	159.6	0.23	1.76	59.3	155.4	0.62	1.31	33.3	215.9	2.77
0160	0432	1.30	38.9	317.8	0.26	1.27	18.9	234.0	0.38	3.07	53.9	176.3	0.51	0.89	23.0	245.1	1.33
0120	0358	1.14	31.4	255.3	0.26	0.75	15.8	196.5	0.63	0.77	16.2	180.8	1.36	0.87	19.5	206.5	2.32
0149	0412	1.30	40.7	252.5	0.30	1.01	22.5	224.7	0.70	2.17	59.5	173.6	0.90	1.14	34.4	220.9	2.30
0052	0207	40.40	53.4	281.7	1.00	22.54	14.6	191.0	2.43	36.52	26.3	248.4	4.24	30.29	21.0	219.0	4.28
0052	0257R	2.22	24.3	345.3	1.14	1.25	14.2	282.0	2.46	2.62	73.4	232.7	2.35	1.84	36.5	299.3	6.86
0057	0228	3.58	103.4	164.6	0.12	1.85	39.8	195.4	0.70	1.56	29.9	178.7	1.34	1.21	12.6	228.0	4.01
0059	0234	3.82	100.0	212.7	0.30	1.02	32.6	189.9	0.60	1.86	63.0	161.9	0.87	0.73	24.9	191.0	2.21
0051	0197	0.84	21.2	333.7	0.84	1.13	14.7	254.4	2.80	1.53	4.2	239.4	6.32	1.34	2.0	274.3	10.82
0116	0347	8.18	68.3	158.5	0.18	4.39	46.0	135.0	0.33	3.86	31.1	141.2	0.89	2.53	26.2	165.7	1.76

		----STEADY STATE-15 MPH----				----STEADY STATE-30 MPH----				----STEADY STATE-45 MPH----				----STEADY STATE-60 MPH----			
CAR#	RUN#	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX
0163	0173	4.28	81.1	491.2	0.60	2.69	37.4	388.0	0.99	2.96	51.6	435.8	2.01	1.16	12.2	188.8	5.45
0019	0019	6.04	98.1	403.4	0.50	2.78	20.1	315.2	0.42	2.07	12.8	365.2	1.41	1.88	18.4	421.9	2.25
0081	0081	2.50	49.4	482.9	2.14	0.99	5.5	474.5	1.90	1.48	16.6	442.6	3.76	1.49	17.1	540.8	7.21
0040	0040	8.06	209.4	338.0	0.26	3.14	123.6	287.1	0.25	3.22	129.7	304.4	0.48	2.59	7.9	303.4	1.09
0039	0039	4.64	86.0	288.3	0.58	3.28	75.0	282.3	0.52	3.22	76.3	313.0	2.08	2.89	56.3	364.2	5.30
0168	0179	14.94	175.9	281.7	0.22	8.49	122.6	240.5	0.51	9.51	163.6	295.3	1.06	0.87	167.5	329.9	1.94
0083	0083	7.28	118.6	233.5	0.58	3.74	51.0	277.6	1.47	3.03	33.7	330.1	3.76	3.36	56.6	366.4	4.44
0068	0068	4.00	32.5	244.2	0.36	4.33	48.4	241.0	1.03	4.46	44.9	307.2	3.38	5.50	65.0	332.0	4.25
0135	0137	7.38	155.7	292.9	0.36	3.32	37.7	366.4	1.03	3.86	50.9	394.8	2.03	3.52	47.5	415.7	3.41
0051	0051	1.28	67.3	691.2	0.54	0.87	69.2	503.1	0.47	0.71	47.3	534.4	2.52	0.42	48.1	209.4	3.87
0048	0048	2.52	11.5	562.0	0.96	3.23	47.4	411.4	3.36	3.26	44.6	453.9	6.97	3.30	47.4	544.4	10.08
0085	0085	2.04	54.3	854.6	1.32	1.98	48.7	467.5	1.18	1.93	50.4	416.0	2.37	3.04	58.8	240.1	5.46
0042	0042	4.90	80.4	435.7	0.54	3.25	37.0	348.5	2.48	3.06	35.2	371.1	5.53	3.98	81.3	411.1	5.57
0158	0166	10.12	172.7	299.1	0.52	3.81	55.8	319.1	2.73	3.34	20.8	389.8	9.04	3.65	42.8	449.5	10.51
0158	0167R	4.10	54.3	307.8	1.58	3.28	38.4	337.2	3.97	2.85	11.1	404.7	10.73	3.60	53.0	450.3	9.11
0061	0061	4.82	125.1	437.5	1.06	1.83	21.6	435.1	2.11	1.64	22.4	466.1	4.06	2.53	59.6	519.4	5.46
0114	0114	2.86	24.5	463.5	1.00	2.74	11.9	349.5	1.44	3.31	26.2	385.0	3.56	3.36	38.6	418.8	3.00
0140	0142	5.06	60.2	415.5	0.76	3.58	27.8	316.7	1.53	3.30	22.1	369.6	3.23	3.43	40.8	387.3	3.62
0145	0148	3.94	60.6	452.7	0.62	1.93	5.4	352.5	1.74	2.47	17.8	384.2	3.10	2.60	32.4	425.3	4.65
0155	0162	2.10	15.7	486.2	1.10	1.41	2.9	356.6	1.92	1.68	5.7	389.3	4.74	1.88	14.8	441.0	6.46
0005	0005	4.12	80.4	406.1	1.32	2.98	48.9	282.3	0.63	2.52	13.6	339.3	3.83	2.94	49.1	359.6	3.44
0017	0017	2.76	84.2	402.1	0.44	3.07	76.3	270.4	0.67	3.13	80.3	292.9	1.46	3.04	75.0	333.1	2.77
0100	0100	5.98	143.8	439.7	1.12	2.97	21.2	365.2	1.99	2.90	14.5	421.5	5.82	3.19	19.1	496.4	8.57
0130	0132	4.28	107.7	350.5	0.54	3.42	60.6	281.6	0.97	2.93	36.7	341.9	3.48	3.50	77.3	357.5	3.40
0010	0010	1.22	19.5	534.2	0.64	0.80	10.7	422.1	1.76	2.26	48.6	325.7	2.08	1.07	41.2	410.3	3.20
0012	0012	2.84	35.3	320.5	0.26	3.03	49.7	228.7	0.72	8.39	178.2	176.7	0.44	4.91	125.3	258.0	1.29
0027	0027	2.58	28.8	503.5	0.98	1.79	16.2	400.9	1.74	2.02	15.8	411.3	4.38	2.05	15.8	445.0	7.51
0138	0140	7.80	165.8	389.7	0.50	5.48	88.6	310.0	1.28	5.40	89.3	328.7	0.83	6.70	170.2	331.4	1.57
0138	0146R	6.76	121.7	433.6	0.54	5.06	60.4	308.0	1.67	5.38	82.2	352.8	2.54	6.46	141.3	365.6	2.51
0021	0021	5.60	60.0	378.4	0.54	3.53	48.1	296.3	2.05	4.22	70.6	317.0	2.24	5.69	114.1	321.9	4.06
0031	0031	4.60	93.0	332.4	0.40	4.98	140.6	246.1	0.65	4.30	131.4	299.8	1.28	4.08	126.4	354.4	2.53
0032	0032	8.66	60.9	310.0	0.72	3.17	30.9	240.7	1.09	3.33	41.0	275.2	2.36	3.40	39.3	310.2	3.98
0053	0053	4.06	78.9	442.8	0.82	3.11	46.7	307.3	0.84	3.46	35.1	369.7	3.62	3.46	33.0	433.8	6.41
0023	0023	5.90	96.6	298.4	0.18	4.51	90.3	283.9	0.45	4.54	81.7	320.6	1.82	5.26	99.9	351.2	2.78
0025	0025	4.82	66.1	421.7	0.92	3.22	66.2	316.0	1.21	3.27	66.7	348.2	2.84	3.94	88.0	359.5	3.31
0089	0089	6.68	83.8	350.5	0.72	4.96	60.4	280.6	1.01	4.96	66.2	323.1	1.96	5.03	77.3	382.3	3.43
0112	0112	8.76	171.1	259.0	0.44	6.24	99.2	312.2	0.90	5.76	82.7	387.5	2.70	5.74	88.7	443.3	4.27
0063	0063	2.76	25.1	273.9	0.92	2.32	9.8	292.0	2.21	2.63	17.3	337.4	5.82	3.14	28.5	416.5	8.38
0102	0102	2.40	33.0	316.1	0.80	2.38	53.7	292.9	1.01	2.81	58.6	319.4	2.04	2.54	36.5	390.6	4.34
0131	0133	10.24	101.7	366.1	1.58	5.21	28.8	330.0	3.75	5.82	27.1	380.4	1.64	4.84	29.4	433.7	9.53
0002	0002	4.36	6.1	424.4	0.82	2.28	2.5	297.0	2.30	2.52	10.9	314.8	3.92	3.12	12.2	352.7	5.45
0004	0004	3.40	41.7	447.3	0.58	2.25	22.3	324.9	0.97	2.48	34.7	325.6	2.09	3.73	50.4	365.3	3.74
0038	0038	5.16	66.5	279.6	0.80	2.96	34.7	216.7	1.36	2.70	38.6	196.4	1.62	2.59	41.7	212.4	2.47
0129	0131	3.84	38.1	580.1	0.52	3.54	47.3	436.4	0.92	4.36	72.2	362.3	1.29	5.99	155.2	371.0	1.71
0058	0058	6.98	89.2	348.7	0.82	4.40	69.7	303.0	1.12	3.98	50.8	366.8	3.40	5.24	58.6	407.2	5.03
0075	0075	5.40	23.9	377.5	1.00	5.22	69.2	303.2	1.48	4.96	56.1	358.5	3.76	5.11	66.7	425.2	7.19
0113	0113	5.18	100.6	255.9	0.80	2.29	23.7	278.8	3.20	2.27	24.3	314.5	5.03	2.26	39.3	367.4	6.68
0118	0118	13.44	57.0	359.5	1.84	5.34	76.9	281.3	1.62	5.04	77.5	323.4	3.43	5.57	73.8	395.5	5.71
0062	0062	6.04	77.9	235.3	0.40	3.96	47.4	230.0	1.01	4.94	91.5	227.2	0.24	4.74	113.9	248.1	1.29
0092	0092	17.24	27.2	354.3	4.86	6.98	13.5	306.5	4.83	1.74	8.3	292.9	5.90	1.65	6.5	356.3	8.42

CAR#	RUN#	----STEADY STATE-15 MPH---- HC	CO	CO2	NOX	----STEADY STATE-30 MPH---- HC	CO	CO2	NOX	----STEADY STATE-45 MPH---- HC	CO	CO2	NOX	----STEADY STATE-60 MPH---- HC	CO	CO2	NOX
0101	0101	4.69	48.4	326.4	1.08	4.54	41.2	322.1	2.62	4.14	54.3	378.1	3.87	4.08	55.5	429.0	6.43
0107	0107	6.18	93.0	247.3	0.50	6.04	125.6	253.8	0.52	6.42	110.2	338.3	1.70	5.34	77.1	442.0	5.06
0022	0022	2.68	5.5	426.9	1.26	3.08	35.0	295.8	1.55	2.49	66.8	314.1	1.55	3.48	69.8	359.0	2.64
0109	0109	3.60	24.9	295.4	2.94	2.11	3.5	280.5	3.63	1.80	3.7	350.1	7.68	1.49	5.4	403.0	9.69
0106	0106	4.90	50.9	250.5	1.36	3.69	45.1	241.2	2.34	3.52	45.4	282.5	2.72	3.26	71.9	335.5	2.60
0157	0164	9.12	86.7	308.7	0.42	16.80	72.2	217.8	0.48	14.96	73.8	255.7	0.92	17.83	75.2	311.0	1.87
0125	0126	30.24	164.9	221.8	0.24	24.69	92.6	305.4	1.04	23.05	52.0	369.3	3.33	25.87	47.0	452.5	5.50
0084	0084	9.44	109.6	292.3	0.48	4.91	85.7	235.1	0.49	4.63	84.9	286.7	1.42	4.77	87.0	337.6	2.98
0171	0184	5.04	57.9	318.0	0.44	5.46	106.6	307.1	0.54	4.16	52.3	405.8	2.64	2.79	8.5	498.8	7.48
0123	0124	15.06	199.5	190.7	0.34	6.57	119.9	202.6	0.35	5.10	80.9	292.7	1.68	5.91	113.0	318.7	2.05
0141	0143	3.02	153.0	426.1	0.56	2.05	34.1	384.5	1.43	2.89	50.1	390.5	1.36	3.37	91.3	478.2	0.40
0166	0176	5.42	122.1	335.8	0.32	4.01	37.2	365.9	3.16	4.58	82.5	381.9	3.99	4.98	134.2	414.0	3.54
0166	0178R	7.20	163.9	550.4	1.38	3.36	25.8	363.2	2.81	4.30	79.3	375.0	3.84	4.49	108.9	433.0	4.43
0055	0055	5.20	102.5	260.8	0.22	2.79	19.8	303.4	2.12	3.16	44.4	359.4	2.80	3.12	62.1	398.8	3.11
0069	0069	5.84	129.5	339.2	0.58	3.12	18.8	346.4	3.79	4.00	67.4	361.2	3.48	5.69	136.5	356.1	2.47
0167	0177	5.10	139.1	359.0	0.46	3.82	60.1	365.7	2.68	4.52	107.5	379.5	3.02	4.61	133.7	458.6	5.00
0167	0182R	4.06	102.4	403.8	0.54	3.54	39.9	380.2	3.38	4.01	86.9	376.1	3.09	3.92	99.1	449.0	5.52
0008	0008	3.86	105.9	198.1	0.46	1.88	22.7	260.4	3.17	1.90	44.3	278.1	4.26	2.04	73.1	308.5	4.53
0014	0014	2.74	64.7	281.7	0.44	2.57	44.3	255.0	1.06	2.73	54.0	282.6	2.27	3.00	80.0	302.3	2.67
0066	0066	5.10	106.3	293.9	0.44	4.29	96.9	281.3	0.76	4.38	102.7	334.6	2.48	5.03	156.8	348.7	2.49
0059	0059	5.52	94.1	326.8	0.86	5.07	90.1	303.5	1.14	5.28	102.9	371.0	2.92	5.57	132.2	417.1	4.24
0088	0088	4.04	77.9	359.9	0.54	3.30	90.1	243.8	0.62	3.31	99.6	298.3	1.54	3.83	109.4	363.2	3.32
0160	0169	7.16	171.5	247.0	0.42	5.31	195.1	176.3	0.22	4.36	198.4	236.2	0.65	4.24	215.0	288.3	1.03
0160	0172R	6.04	137.0	190.9	0.24	5.36	190.7	167.8	0.20	4.71	197.0	242.0	0.75	4.36	211.6	288.3	1.07
0086	0086	5.36	133.9	553.1	1.20	3.82	51.3	395.8	1.33	4.68	50.8	421.6	4.36	4.79	48.8	492.7	6.90
0095	0095	2.52	66.6	258.2	1.00	1.94	21.9	401.0	3.80	1.93	22.2	420.8	7.54	1.81	19.7	488.5	10.34
0152	0158	2.56	45.5	548.8	1.22	2.49	28.3	377.8	2.57	3.20	33.5	409.0	5.41	3.50	62.5	453.8	7.05
0172	0185	2.56	33.9	474.7	0.86	1.96	17.3	408.2	2.04	2.79	23.1	444.9	5.18	2.68	26.6	523.3	8.29
0007	0007	1.92	44.2	297.3	1.00	1.68	8.1	264.1	2.79	1.78	2.2	302.8	7.56	1.74	2.5	359.2	10.45
0064	0064	4.96	103.3	310.2	0.96	2.43	24.4	346.3	2.90	2.98	38.8	379.2	6.00	3.56	82.0	427.8	5.80
0071	0071	2.84	13.1	514.7	1.00	2.44	13.4	360.0	1.84	3.26	34.2	402.5	3.38	3.79	49.7	457.1	5.92
0122	0122	5.62	98.6	303.5	0.96	2.88	16.0	359.2	3.90	3.34	31.1	394.6	6.68	3.73	61.2	452.0	7.62
0122	0123R	3.98	40.5	370.8	1.48	2.30	4.6	375.7	4.64	2.92	13.3	415.2	8.63	3.12	37.9	467.3	9.18
0013	0013	2.54	62.4	291.6	0.04	1.75	19.9	285.7	0.89	2.14	8.0	302.2	5.04	2.27	18.3	340.0	5.92
0126	0128	7.30	44.3	754.6	6.38	2.16	10.9	387.7	1.91	2.95	7.8	359.7	1.10	2.93	22.0	377.3	7.09
0136	0138	3.30	25.2	463.2	0.78	3.48	30.6	395.4	2.70	3.88	55.7	442.4	4.46	4.27	82.9	501.1	6.46
0006	0006	4.58	184.8	342.6	0.46	2.04	66.0	338.0	0.54	2.66	29.9	421.2	6.84	3.79	93.0	458.3	6.09
0047	0047	2.76	11.0	460.4	1.12	3.06	42.1	349.8	2.21	4.04	81.3	368.6	3.22	4.20	88.3	440.0	5.51
0060	0060	7.64	179.7	264.9	0.78	3.68	77.0	309.2	0.79	4.23	61.1	360.3	3.33	4.57	70.9	449.2	5.73
0057	0057	4.58	104.1	335.6	0.34	4.94	132.1	286.2	0.66	6.06	185.3	298.9	0.77	6.14	202.9	355.0	1.27
0074	0074	5.88	160.9	369.6	0.60	3.10	65.4	349.3	0.70	4.06	69.5	379.2	0.46	4.08	59.3	453.5	4.37
0082	0082	9.84	136.7	291.3	0.54	6.20	92.8	251.1	0.63	5.34	67.6	339.6	2.96	6.08	106.5	372.7	3.25
0033	0033	3.72	78.5	266.0	0.58	3.00	42.2	262.1	1.76	2.82	42.3	268.1	2.98	2.70	35.3	310.9	5.04
0034	0034	7.70	102.5	320.8	0.36	10.64	55.7	308.1	0.95	3.44	49.5	246.2	1.40	3.51	68.7	260.7	1.92
0035	0035	5.80	112.3	350.6	0.40	5.84	139.6	296.5	0.44	6.10	148.7	314.2	0.85	5.93	154.2	340.0	1.31
0090	0090	5.12	106.3	372.7	1.22	4.51	91.1	316.9	0.61	4.30	79.6	352.0	1.43	5.82	222.3	371.0	0.62
0070	0070	7.20	164.4	243.4	0.52	3.76	72.2	230.5	1.97	3.16	43.3	307.7	3.74	3.38	54.0	368.6	6.26
0134	0134	7.96	152.7	232.9	0.24	3.62	67.9	223.0	0.50	2.91	27.8	279.0	2.50	3.44	44.3	336.6	5.06
0143	0145	6.14	109.5	280.0	0.56	6.16	148.4	255.6	0.54	4.22	72.4	336.8	2.40	4.20	89.7	456.0	3.57
0143	0152R	4.86	90.5	231.2	0.30	4.31	97.4	210.3	0.42	4.18	93.2	236.3	0.84	3.41	70.2	316.0	2.37

		----STEADY STATE-15 MPH----				----STEADY STATE-30 MPH----				----STEADY STATE-45 MPH----				----STEADY STATE-60 MPH----			
CAR#	RUN#	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	.CO2	NOX	HC	CO	CO2	NOX
0065	0065	4.34	59.7	230.8	0.80	2.73	21.4	254.0	1.70	2.13	10.8	312.1	3.30	1.87	13.9	384.1	5.29
0099	0099	5.86	123.9	319.4	0.56	4.80	77.0	347.1	1.95	5.30	115.3	369.7	2.25	5.55	147.1	417.4	2.97
0154	0161	4.76	115.5	294.2	0.88	4.78	67.9	292.4	2.33	4.62	53.3	343.4	1.02	4.02	61.4	393.8	6.19
0154	0165R	5.22	86.6	308.3	0.46	5.09	46.8	274.5	1.95	4.72	43.1	325.8	3.47	4.03	45.4	358.3	5.38
0045	0045	4.84	68.7	408.2	0.96	3.70	39.4	387.7	2.50	3.98	38.5	486.9	5.21	3.74	54.7	511.3	5.90
0094	0094	4.44	62.6	261.4	0.96	4.07	27.5	307.3	3.45	3.84	23.9	348.3	6.65	4.12	39.9	429.0	9.17
0150	0156	6.34	90.9	350.4	0.74	4.04	39.0	356.4	3.45	4.29	71.2	356.1	4.77	4.57	76.5	428.4	6.06
0159	0168	8.28	64.5	563.7	2.64	3.36	59.6	330.6	2.84	4.51	112.1	333.9	2.27	5.81	160.2	372.4	2.86
0149	0155	4.22	69.6	269.2	0.52	3.84	80.0	175.1	0.47	2.80	57.8	239.2	0.57	2.48	48.2	291.4	3.07
0087	0047	7.94	96.2	226.5	0.46	3.65	55.1	197.1	0.91	7.49	64.2	169.0	0.81	9.80	73.5	194.2	0.97
0165	0175	4.52	25.3	242.7	1.20	3.85	24.7	246.9	2.67	3.89	34.5	295.1	4.13	3.58	42.4	350.5	6.17
0104	0104	35.80	30.8	291.4	3.16	5.66	45.8	358.1	1.59	2.89	12.6	424.4	6.04	3.20	28.5	512.4	6.64
0093	0093	17.44	174.8	214.8	0.64	6.70	56.6	352.6	4.01	7.37	93.3	379.1	5.75	10.95	99.7	459.7	6.63
0078	0078	2.28	15.6	420.1	1.18	1.81	6.9	388.0	1.83	2.52	16.4	411.8	5.46	2.69	13.9	507.1	9.15
0091	0091	4.66	69.2	335.4	1.10	3.11	27.2	297.7	1.73	4.46	29.9	396.9	7.50	4.48	44.1	448.3	8.77
0026	0026	1.68	21.0	501.9	0.72	1.82	11.0	316.9	0.90	1.79	14.7	269.1	2.40	2.11	23.6	355.0	3.88
0041	0041	5.42	99.2	234.0	0.40	3.23	50.9	261.6	0.74	3.36	45.9	289.3	2.83	2.97	59.0	269.3	2.43
0128	0181	13.04	193.1	201.3	0.18	4.38	73.0	253.8	1.61	3.22	63.9	287.4	2.78	4.44	100.3	308.8	2.99
0098	0098	13.89	307.5	254.8	0.42	6.17	164.7	301.0	1.21	6.05	177.7	322.9	1.70	5.75	185.4	395.3	3.08
0169	0180	4.72	96.2	303.1	0.30	1.81	9.3	351.6	0.95	1.56	8.5	408.0	1.96	1.47	9.5	472.9	3.30
0016	0016	2.42	87.5	501.5	0.50	1.76	53.3	341.7	1.23	1.82	55.8	365.0	2.80	2.36	82.6	413.6	4.42
0009	0009	3.48	153.6	471.7	0.26	2.55	79.8	315.9	0.42	2.54	80.5	348.9	1.33	2.57	82.6	378.6	2.65
0137	0139	3.14	15.3	467.6	0.92	2.32	37.9	334.5	0.97	2.96	59.5	341.7	2.02	3.38	79.5	331.1	2.82
0096	0096	3.64	75.3	455.6	0.72	3.87	43.3	346.2	1.38	3.68	56.8	400.0	2.83	4.02	62.2	442.8	3.87
0029	0029	8.30	138.0	335.1	0.58	3.48	49.6	305.6	1.16	3.76	47.9	362.3	3.94	3.43	53.0	419.8	6.92
0054	0054	8.34	138.6	368.7	2.36	3.77	64.7	359.4	1.19	4.33	86.4	352.2	1.74	3.81	84.5	414.9	3.50
0108	0108	5.42	59.9	295.8	0.50	4.73	65.7	288.5	0.81	6.54	127.3	303.5	1.06	6.08	140.4	367.8	2.43
0170	0183	9.96	134.3	238.8	0.22	5.54	62.9	344.1	1.76	7.04	178.6	322.4	1.10	7.21	68.7	369.2	1.65
0077	0077	10.54	138.8	281.6	0.60	4.49	49.4	293.3	2.07	4.12	62.9	271.5	2.71	4.20	85.6	328.3	3.04
0161	0170	2.10	20.9	284.3	1.10	2.04	23.5	268.6	2.43	1.85	30.1	303.7	5.07	1.98	55.3	340.0	5.94
0116	0116	17.28	57.2	422.4	0.68	3.61	51.9	254.9	0.52	3.40	66.8	278.1	1.40	3.85	87.1	349.4	2.95
0015	0015	3.96	3.8	351.8	0.86	1.79	13.8	319.9	2.06	1.66	16.3	355.7	4.22	2.06	30.0	411.1	6.94
0153	0160	12.36	95.5	490.8	0.36	6.15	78.3	378.2	1.03	4.55	106.2	319.1	1.18	4.81	159.2	352.1	1.39
0046	0046	7.42	99.1	303.7	0.50	5.02	85.1	289.9	1.16	4.96	78.0	354.4	2.97	4.74	105.7	391.6	3.58
0151	0157	7.06	82.7	308.9	0.60	4.28	20.5	352.1	3.73	4.00	19.2	387.9	7.16	4.11	31.8	433.3	8.75
0151	0159R	6.30	112.7	360.2	0.48	2.56	21.6	354.2	0.99	2.04	27.8	401.6	2.90	3.71	60.0	451.0	3.81
0144	0147	5.48	92.0	303.0	0.26	3.49	29.1	280.6	1.36	6.70	153.4	222.1	0.28	7.69	281.1	271.4	0.35
0144	0149R	5.08	108.2	339.9	0.32	3.14	27.9	294.5	1.60	5.83	176.8	228.8	0.10	6.61	298.5	289.3	0.41
0056	0056	9.04	140.3	207.8	0.34	3.50	46.2	299.6	2.55	3.01	35.4	364.6	4.96	2.98	64.8	421.2	4.54
0115	0115	3.76	17.4	269.5	1.58	2.37	20.2	203.8	2.13	2.57	53.1	229.9	2.71	2.72	69.4	269.0	3.71
0139	0141	35.62	245.2	329.9	0.16	18.14	170.1	174.5	0.09	6.38	157.9	223.8	0.33	6.85	165.9	280.2	1.08
0173	0186	5.18	87.5	412.9	2.36	3.36	41.1	297.9	2.42	5.10	39.6	389.6	8.28	2.43	10.5	485.2	13.06
0132	0134	4.62	155.5	470.4	0.80	2.18	40.9	433.0	1.02	2.62	51.6	458.5	1.02	1.60	18.2	186.8	4.92
0011	0011	4.50	47.4	476.2	0.84	3.02	18.0	358.6	2.26	3.32	21.2	371.6	4.72	3.49	25.4	420.3	7.44
0162	0171	5.76	66.9	441.5	0.70	2.97	48.8	356.5	1.97	2.58	68.1	407.9	4.29	3.12	99.8	444.9	4.73
0003	0003	3.44	43.8	641.2	0.44	2.76	7.5	375.4	2.09	1.78	3.7	265.2	4.33	1.50	3.8	444.8	7.55
0018	0018	1.70	21.6	551.9	0.90	1.19	6.3	383.5	1.16	1.68	12.9	375.5	2.63	1.13	7.6	454.6	3.99
0028	0028	4.26	78.3	378.7	0.86	2.85	45.0	310.1	1.25	2.95	20.3	355.3	5.98	2.97	28.2	388.8	7.05
0037	0037	6.36	89.7	340.9	0.80	3.78	63.0	298.6	0.87	3.34	35.7	371.2	3.58	2.93	28.2	406.6	6.57
0124	0125	4.92	77.4	271.0	4.32	3.02	32.0	303.4	2.96	2.45	14.5	322.1	5.50	2.31	14.7	415.7	7.11

		----STEADY STATE-15 MPH----				----STEADY STATE-30 MPH----				----STEADY STATE-45 MPH----				----STEADY STATE-60 MPH----			
CAR#	RUN#	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX
0067	0067	3.80	24.3	405.1	0.70	3.16	32.5	335.1	2.03	4.80	117.7	315.7	1.47	5.86	176.0	348.4	1.74
0156	0163	5.12	64.4	306.7	1.08	3.69	24.3	319.8	3.49	3.66	19.9	384.9	8.13	3.29	19.0	445.4	4.61
0120	0120	9.44	103.8	233.2	0.16	4.51	57.1	236.9	0.52	6.56	68.7	535.4	0.45	8.19	234.6	217.1	0.44
0072	0072	6.56	66.4	273.2	0.40	4.71	43.0	307.8	2.29	5.85	95.9	317.8	2.45	5.85	121.5	356.5	2.83
0079	0079	5.20	38.8	418.8	1.12	4.58	76.9	312.8	1.29	5.12	98.7	369.6	2.54	5.25	126.1	404.6	3.71
0001	0001	8.22	202.6	319.1	0.18	3.36	119.0	239.1	0.35	2.48	77.4	310.9	1.59	2.85	95.1	354.8	2.99
0105	0105	2.32	45.6	383.5	0.86	1.65	23.9	281.6	1.11	1.67	11.8	344.7	3.94	1.25	10.8	430.2	7.20
0148	0154	3.98	78.5	231.7	0.62	2.50	25.1	237.6	2.13	2.76	43.2	284.1	3.40	2.82	53.6	331.4	4.96
0133	0135	5.86	155.5	257.3	0.24	4.66	93.5	239.0	0.45	5.38	112.8	258.3	1.05	5.25	130.8	297.2	1.67
0121	0121	10.38	131.5	473.6	2.42	4.17	56.4	238.4	1.38	3.53	54.0	294.7	3.20	3.34	54.3	395.5	6.12
0052	0052	11.30	138.1	217.3	0.76	6.83	111.3	188.7	0.29	6.18	82.8	277.3	1.44	6.23	117.3	331.9	1.94
0044	0044	5.10	79.5	200.9	0.36	4.09	71.6	229.2	1.11	4.61	86.0	275.4	1.62	9.40	255.0	235.5	0.37
0146	0150	4.90	64.8	269.8	0.40	3.61	47.1	214.8	0.84	40.97	74.2	256.4	1.05	4.21	74.7	296.5	2.19
0110	0110	1.78	40.7	338.9	0.56	1.62	35.8	210.2	0.80	1.50	31.1	209.7	1.66	1.42	23.9	280.7	3.48
0147	0151	1.70	32.3	281.4	0.48	1.16	6.8	227.4	2.20	1.45	11.8	222.4	3.92	1.45	34.8	242.1	4.04
0147	0153R	1.56	34.4	292.0	0.68	0.93	8.4	222.4	1.97	1.18	9.0	204.2	1.40	1.39	29.6	236.9	4.34
0020	0020	0.48	5.5	196.4	0.40	0.31	10.2	188.3	0.43	0.29	4.2	194.1	1.36	0.24	1.1	200.6	1.80
0111	0111	2.90	41.8	216.1	0.94	1.60	19.0	166.7	1.87	1.94	38.2	206.7	2.32	2.00	68.7	230.1	2.19
0117	0117	5.50	99.4	189.2	0.70	2.36	51.4	214.7	1.30	1.97	39.5	214.8	1.15	2.06	62.3	267.2	3.78
0142	0144	2.80	43.3	146.1	0.38	1.85	31.9	125.1	0.73	1.54	25.4	142.6	0.64	1.45	34.2	163.8	2.87
0036	0036	3.50	65.3	183.4	0.32	1.82	56.2	160.9	0.24	2.08	44.6	159.4	0.80	1.36	37.6	185.7	1.61
0097	0097	2.92	78.5	210.2	0.52	2.28	70.5	193.1	0.47	1.75	19.5	237.1	2.80	2.13	58.5	257.4	3.13
0080	0080	3.62	46.3	197.6	0.64	2.31	39.6	193.6	1.01	2.14	28.4	202.1	2.50	2.16	21.6	257.3	5.12
0050	0050	3.58	46.9	147.2	0.34	1.95	27.6	155.4	0.59	1.86	17.4	192.1	2.22	1.91	35.7	215.0	3.41
0103	0103	6.52	125.7	190.1	0.28	1.46	63.9	205.1	0.61	1.30	69.6	220.2	0.97	0.98	52.2	165.4	0.73
0073	0073	7.24	121.8	130.8	0.24	1.86	66.5	107.0	0.33	1.51	50.1	170.0	1.25	1.96	105.7	159.9	0.51
0076	0076	3.78	121.5	203.9	0.60	2.31	81.6	195.9	0.43	1.84	33.1	209.6	3.16	1.85	32.0	276.1	5.78
0127	0129	4.42	73.7	483.3	1.16	3.14	30.2	335.9	2.17	3.42	39.8	404.4	4.57	2.81	19.5	473.5	9.31
0024	0024	4.02	27.6	382.8	1.26	0.61	24.9	294.0	1.84	0.70	26.1	241.3	2.85	0.50	23.6	256.8	5.01
0119	0119	1.88	35.0	205.8	0.60	2.53	50.8	178.8	1.29	2.48	44.8	223.1	2.55	2.48	58.6	260.3	2.87

CAR#	RUN#	----STEADY STATE-15 MPH---- HC	CO	CO2	NOX	----STEADY STATE-30 MPH---- HC	CO	CO2	NOX	----STEADY STATE-45 MPH---- HC	CO	CO2	NOX	----STEADY STATE-60 MPH---- HC	CO	CO2	NOX
0064	0064	4.16	135.4	550.6	0.84	3.79	115.0	390.2	0.93	3.37	92.4	447.1	1.60	2.73	76.4	413.4	2.11
0049	0049	1.04	8.3	595.2	0.72	1.76	8.9	394.8	2.19	1.73	5.9	442.8	3.10	1.73	5.6	506.4	6.13
0067	0067	3.84	113.6	499.8	4.72	2.52	27.8	389.8	2.52	2.39	26.2	433.8	2.82	2.34	24.9	509.2	5.71
0132	0147	3.44	74.6	303.6	0.38	1.80	24.8	320.6	1.86	2.08	29.2	360.2	5.88	2.26	48.5	410.1	7.67
0115	0122	4.84	74.2	382.2	0.58	2.15	11.6	339.4	2.12	2.08	12.7	374.1	8.41	1.76	7.8	431.1	12.52
0150	0163	3.32	99.3	327.9	0.34	4.43	111.4	232.4	0.37	5.68	184.6	234.5	0.49	5.48	233.7	272.8	0.70
0071	0071	8.32	199.2	190.1	0.26	4.95	61.8	251.6	0.50	3.15	54.8	325.2	1.76	1.71	38.9	374.4	3.37
0145	0159	3.92	71.0	128.7	0.26	1.44	25.0	151.3	0.84	1.04	17.0	167.8	3.32	0.45	11.6	170.0	3.79
0089	0090	7.46	113.9	309.8	0.42	4.32	56.3	343.1	1.23	5.06	107.5	376.4	2.94	4.40	75.2	455.3	6.83
0169	0186	39.40	80.0	359.7	0.84	30.74	27.8	409.8	5.78	35.32	32.0	510.2	11.49	38.66	37.7	580.3	13.65
0022	0021	4.10	127.7	630.1	0.86	2.66	66.0	458.5	2.96	2.01	30.6	528.5	3.66	1.32	5.7	614.8	6.50
0012	0012	5.80	58.3	360.8	0.66	5.50	129.7	510.6	5.66	5.09	114.1	516.1	2.10	6.42	157.6	660.6	2.90
0138	0149	2.20	21.9	650.0	0.84	2.53	53.6	457.9	0.83	3.03	103.6	466.1	1.13	3.21	114.8	535.5	2.23
0082	0038	6.28	43.0	429.9	4.74	3.29	4.7	371.4	6.14	3.36	13.5	458.0	10.86	3.03	15.8	517.2	11.47
0008	0008	3.86	140.7	391.0	0.80	2.69	49.0	486.8	4.25	2.91	69.7	606.6	2.49	3.30	91.9	504.7	2.21
0093	0095	2.88	57.4	578.6	0.70	2.29	34.5	402.6	1.87	2.22	27.3	487.0	8.12	1.68	9.3	585.2	13.24
0101	0106	2.68	42.3	401.6	0.60	1.36	16.4	339.0	2.64	2.08	22.7	360.8	4.96	1.89	12.3	460.0	9.99
0114	0123	1.80	11.6	469.6	4.72	1.36	1.7	359.5	4.27	1.56	10.0	424.2	1.15	1.42	4.3	475.4	10.36
0135	0146	1.16	26.1	228.0	0.54	0.14	3.5	310.9	1.12	0.60	1.5	221.0	4.80	0.47	5.6	265.9	5.32
0085	0087	3.80	86.2	854.8	4.50	2.44	30.5	346.1	2.79	2.67	37.8	390.5	6.50	2.98	22.7	479.4	10.68
0116	0124	5.16	93.6	203.2	0.36	3.01	46.2	292.3	1.43	1.72	6.3	395.4	9.18	2.55	30.1	446.9	10.42
0136	0151	2.38	25.8	398.1	0.68	1.87	2.9	373.1	8.47	1.89	3.1	389.5	10.73	1.79	6.7	453.4	12.68
0136	0153R	2.30	27.4	404.7	0.72	1.79	2.3	369.7	8.88	1.84	2.7	403.1	12.14	1.75	6.5	463.0	12.94
0041	0044	1.26	11.9	513.3	1.06	1.23	1.7	303.6	2.17	1.40	4.3	277.2	2.32	1.98	1.1	517.2	7.56
0080	0033	1.92	42.7	472.1	0.68	1.98	16.6	321.0	2.04	2.01	9.8	383.1	8.02	2.49	17.2	455.9	11.80
0119	0129	2.38	48.6	449.0	0.60	1.80	13.0	316.4	1.36	2.38	20.1	353.7	7.21	2.81	28.6	423.7	8.28
0137	0150	2.44	12.9	667.1	0.84	2.40	7.0	393.6	3.10	2.55	12.1	422.2	7.26	2.23	3.8	511.1	12.74
0018	0017	4.88	161.7	273.3	0.76	3.28	92.5	259.2	0.61	4.21	115.9	289.6	1.74	4.56	159.1	345.7	2.80
0001	0026	2.32	58.8	267.2	0.34	0.37	26.1	193.6	1.38	0.84	14.7	154.7	0.85	0.96	21.0	159.4	1.24
0070	0070	1.56	49.6	272.0	0.58	1.38	59.7	255.5	2.48	1.76	49.1	300.1	2.12	1.69	25.3	394.5	3.91
0094	0099	3.22	31.7	337.4	0.76	2.38	18.7	354.3	2.16	2.90	30.1	398.5	5.08	4.21	52.1	433.1	6.65
0164	0176	1.62	23.3	414.9	0.76	2.00	16.3	258.3	1.69	2.74	42.1	286.0	3.81	1.67	2.6	384.5	11.98
0030	0032	8.30	154.5	293.1	0.26	3.49	39.3	292.0	1.88	3.54	50.8	336.9	4.48	3.63	52.4	399.0	3.01
0083	0086	14.58	104.3	300.2	0.50	4.11	47.9	281.4	1.55	5.64	56.1	314.0	3.61	4.29	60.9	362.7	5.71
0134	0144	8.06	91.9	285.3	0.32	4.99	66.7	228.0	0.47	4.97	53.5	285.1	1.90	4.28	44.2	351.3	4.98
0134	0145R	8.36	92.9	285.0	0.34	4.95	68.1	240.8	0.48	5.21	59.4	307.6	2.01	4.61	54.3	385.0	5.15
0005	0005	10.26	176.7	267.3	0.34	5.95	114.3	242.1	0.69	4.64	61.5	359.1	2.51	4.51	70.9	427.2	1.88
0059	0059	2.22	94.3	346.0	0.50	2.43	79.5	289.8	1.20	3.23	75.0	368.5	0.43	2.48	46.3	506.3	4.33
0099	0104	6.76	61.3	450.0	2.96	3.74	23.7	299.9	2.00	3.88	35.5	322.3	4.14	3.62	26.0	402.6	7.23
0086	0105	5.72	69.4	300.4	0.58	4.47	38.2	336.0	2.09	4.72	52.8	388.9	5.60	3.03	57.1	427.9	7.40
0158	0182	18.94	16.4	365.5	1.16	19.44	24.0	351.9	3.30	3.14	12.9	425.2	7.18	10.59	18.7	472.0	9.83
0062	0073	2.84	68.4	233.0	0.40	1.32	38.8	173.5	0.44	2.16	40.0	225.8	1.63	2.36	41.0	280.0	2.72
0076	0078	3.38	67.4	354.7	0.68	2.38	36.6	277.8	1.67	40.44	43.6	348.5	4.52	3.00	46.8	404.3	7.35
0106	0113	4.42	81.2	217.2	0.34	2.19	31.9	229.8	1.39	2.46	18.9	320.7	5.66	2.64	15.9	405.2	11.45
0110	0117	2.24	41.4	221.6	0.38	1.44	24.8	212.3	0.99	1.61	24.4	274.0	4.51	1.93	23.6	335.5	8.20
0160	0173	3.58	68.2	231.0	0.26	2.22	43.5	229.8	0.88	2.49	50.1	290.9	2.83	3.55	60.5	356.5	5.07
0148	0178	56.66	200.2	642.8	3.26	18.40	46.7	266.5	1.08	22.28	62.8	307.2	2.70	25.24	69.5	375.6	4.97
0023	0027	4.38	111.2	245.7	0.76	1.34	24.6	316.4	3.78	1.48	46.6	330.5	5.26	0.88	9.8	454.0	4.81
0050	0051	4.74	92.3	213.7	0.18	2.17	30.7	218.5	1.92	1.62	11.8	279.8	0.54	1.35	10.9	353.1	1.20
0073	0075	4.84	19.7	379.5	0.64	3.02	29.6	291.1	2.13	3.73	62.4	330.8	1.96	2.97	45.0	408.2	2.88

CAR#	RUN#	----STEADY STATE-15 MPH---- HC	CO	CO2	NOX	----STEADY STATE-30 MPH---- HC	CO	CO2	NOX	----STEADY STATE-45 MPH---- HC	CO	CO2	NOX	----STEADY STATE-60 MPH---- HC	CO	CO2	NOX
0130	0139	5.28	37.1	388.1	0.58	3.94	35.3	299.9	1.60	3.94	39.5	347.7	3.93	5.67	37.6	149.9	8.31
0156	0170	2.30	23.5	381.5	0.54	1.38	4.7	375.5	1.42	1.94	14.1	418.7	3.07	1.90	23.2	460.3	4.62
0087	0096	2.42	74.9	203.5	0.38	2.42	36.3	225.5	1.32	1.88	11.7	328.4	6.96	1.81	13.7	376.6	9.83
0024	0024	4.93	100.8	299.5	0.42	2.83	49.9	252.2	0.98	2.16	25.0	221.4	1.84	3.78	36.1	350.4	2.85
0058	0058	2.24	52.4	229.2	0.52	1.44	12.8	303.9	3.61	1.41	6.2	398.0	4.00	0.95	5.8	475.2	5.34
0139	0152	5.56	103.8	156.1	0.24	2.26	32.2	254.9	1.77	2.02	13.5	346.2	6.66	1.44	12.5	417.7	10.43
0149	0162	9.80	107.4	688.0	1.78	3.44	40.1	271.1	1.50	2.99	35.0	346.2	4.50	3.15	44.3	401.9	7.31
0060	0062	3.30	51.4	232.3	0.64	2.50	11.7	282.7	2.63	2.20	5.8	370.2	3.39	2.32	6.1	435.8	4.76
0112	0119	2.32	40.8	231.4	0.54	1.42	3.5	289.1	3.33	1.38	1.9	348.8	8.30	1.43	2.3	437.7	13.57
0142	0156	14.10	54.4	255.9	1.40	3.61	41.7	304.6	2.74	5.68	60.1	365.6	4.92	2.96	66.4	446.7	7.49
0034	0035	4.58	165.8	407.4	0.42	2.86	66.0	354.6	1.46	2.74	50.7	453.0	4.92	3.22	67.5	479.5	3.20
0152	0164	5.28	113.5	284.4	0.38	2.91	34.3	310.8	1.35	2.46	16.5	382.2	6.92	2.58	23.3	445.0	9.02
0078	0081	5.70	74.9	364.6	0.76	5.36	64.4	347.1	1.64	5.28	81.4	411.8	4.06	4.64	90.1	458.7	6.74
0113	0121	3.24	88.7	339.3	0.44	1.91	25.3	350.5	1.67	1.43	5.3	410.9	7.28	2.30	29.0	436.1	7.78
0125	0128	3.92	54.6	241.8	0.40	2.37	31.4	278.7	1.49	2.44	30.8	340.6	3.96	2.90	59.3	394.0	4.69
0154	0168	4.54	90.6	414.9	0.48	2.99	35.3	370.7	1.24	1.71	9.8	449.0	9.94	2.75	53.8	465.1	9.81
0032	0135	2.48	64.5	234.6	0.50	1.44	11.3	275.0	2.05	1.42	9.1	322.7	4.76	1.79	18.5	370.9	6.63
0167	0183	13.56	39.8	398.8	0.90	2.81	11.7	304.6	2.01	2.79	32.4	353.1	4.70	3.05	43.7	418.5	8.11
0061	0061	1.78	28.0	439.6	0.46	1.52	7.5	392.1	4.04	1.17	4.4	437.2	0.48	1.59	7.3	528.0	1.14
0096	0101	2.24	13.0	416.4	1.20	2.13	6.5	355.9	5.32	3.62	58.1	375.0	4.82	4.13	106.8	408.6	0.96
0168	0181	2.20	10.5	251.4	1.00	1.65	4.6	268.6	3.08	3.36	28.8	307.4	6.28	3.18	18.4	383.8	11.32
0126	0138	3.84	78.2	213.8	0.36	2.49	46.7	258.4	1.07	2.40	34.6	306.7	4.10	2.88	50.4	361.0	5.23
0161	0174	2.92	41.1	236.6	1.18	1.79	31.1	287.1	3.00	1.40	18.0	357.7	7.23	1.07	9.4	438.9	10.58
0026	0029	0.64	36.6	330.0	0.46	0.74	40.4	220.3	0.47	0.64	10.1	227.6	1.85	0.72	15.3	262.9	3.77
0069	0069	3.62	114.7	432.4	0.70	2.42	40.5	447.8	2.11	2.35	27.8	490.0	3.36	2.51	24.3	578.7	5.12
0165	0185	0.32	3.5	723.5	1.84	0.71	3.5	457.4	1.94	1.60	3.5	457.5	7.89	1.56	4.3	522.8	12.03
0007	0007	2.68	71.6	775.5	0.44	1.62	7.5	680.1	3.52	2.98	37.6	737.7	2.46	2.43	8.0	878.8	4.41
0120	0125	1.18	9.5	358.9	0.78	1.19	2.9	232.1	2.70	1.28	2.7	281.4	8.26	1.20	2.9	332.3	12.64
0133	0143	1.70	29.8	456.4	0.84	1.16	3.5	369.7	1.74	2.38	7.5	374.6	8.51	2.73	17.6	434.2	10.36
0033	0034	5.70	91.3	418.0	0.52	4.38	11.1	526.3	4.41	3.60	8.4	431.5	4.87	2.71	6.0	573.6	5.55
0035	0036	2.32	90.9	462.1	0.56	0.96	8.7	443.5	2.68	1.40	8.5	498.0	3.58	1.68	18.0	551.2	4.61
0146	0160	3.24	76.3	283.7	0.52	1.76	17.0	297.3	1.08	2.86	3.9	343.6	8.36	2.16	2.6	399.8	11.95
0155	0169	2.84	92.9	236.3	0.44	1.63	9.4	291.3	3.67	1.46	1.9	336.9	9.79	1.49	4.4	411.0	14.74
0155	0171R	2.96	91.8	231.2	0.44	1.70	11.7	275.0	3.18	1.42	2.3	348.1	10.48	1.44	4.4	410.4	14.14
0013	0013	4.46	179.1	329.3	2.14	2.46	60.9	347.0	1.87	2.57	27.4	420.9	2.91	2.73	34.8	466.8	3.34
0031	0033	0.64	11.1	501.4	0.96	1.18	2.4	358.1	2.27	1.39	4.5	387.6	3.13	1.31	3.0	456.3	1.01
0031	0047R	0.14	8.3	527.4	1.10	1.44	5.9	389.6	4.42	1.46	12.2	464.8	4.35	1.24	11.2	586.8	6.91
0060	0060	2.56	42.0	505.7	1.40	1.92	7.6	407.5	3.77	2.29	7.0	483.0	4.44	2.10	7.8	558.9	5.89
0159	0172	0.82	5.9	379.3	1.06	1.48	4.7	286.5	5.43	1.32	2.3	321.5	11.12	1.24	1.7	382.7	16.92
0043	0046	8.06	126.4	248.0	0.20	4.46	91.0	245.8	0.83	3.59	53.2	330.5	3.41	3.69	61.3	366.0	2.04
0051	0050	3.94	106.6	267.2	0.36	3.74	61.9	246.1	0.95	3.13	32.0	321.4	5.18	3.44	43.6	368.9	2.48
0072	0074	3.22	87.0	319.0	0.34	4.90	5.8	364.1	3.96	2.35	96.5	423.4	3.88	3.42	36.8	465.4	3.82
0105	0112	14.82	74.6	562.0	0.36	3.99	21.5	519.5	0.35	1.14	9.7	458.0	0.53	2.80	100.8	386.2	0.67
0141	0155	3.12	31.3	419.2	0.66	1.91	14.5	518.9	1.96	2.68	33.7	610.2	3.85	2.25	18.3	520.0	5.80
0021	0022	4.52	109.5	273.9	0.56	3.08	38.0	419.2	7.79	2.39	17.4	385.7	4.28	4.32	13.1	464.6	6.44
0084	0085	4.86	9.5	477.5	0.74	2.86	12.5	350.7	4.44	2.48	3.9	412.3	11.27	2.15	5.0	500.4	13.64
0045	0040	3.22	44.1	307.1	0.54	3.25	21.4	337.9	6.33	3.02	11.5	405.0	4.55	2.81	9.8	483.0	6.13
0056	0052	2.54	84.6	411.9	0.48	2.41	59.7	335.9	1.45	2.69	54.9	384.3	1.46	2.35	63.1	407.7	3.10
0107	0114	34.28	61.7	239.1	0.42	34.94	23.2	305.2	2.46	43.76	16.3	383.4	5.37	44.35	15.7	483.0	8.58
0129	0140	5.12	106.7	243.6	0.34	3.16	44.9	244.5	1.60	2.30	9.2	335.4	9.12	2.28	6.3	402.1	13.34

		----STEADY STATE-15 MPH----				----STEADY STATE-30 MPH----				----STEADY STATE-45 MPH----				----STEADY STATE-60 MPH----			
CAR#	RUN#	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX
0074	0079	3.40	52.0	224.2	1.04	2.86	23.0	265.5	2.63	2.60	29.1	301.3	5.18	2.63	26.0	387.3	8.20
0111	0118	3.14	11.7	522.4	0.74	4.47	76.1	346.1	0.58	4.58	83.3	309.3	1.00	7.85	134.1	330.0	1.11
0143	0161	3.20	7.0	349.0	0.62	2.75	8.8	305.5	3.80	2.59	7.0	362.7	8.01	2.23	7.6	431.3	10.80
0144	0158	7.38	162.2	262.3	0.40	4.06	51.7	308.6	1.63	4.53	78.9	345.5	3.40	4.46	97.3	380.7	4.34
0075	0076	5.46	78.0	317.1	0.72	2.53	15.9	349.7	3.77	2.82	34.2	373.1	2.25	3.19	41.3	480.3	3.57
0091	0093	4.06	34.9	444.6	6.02	2.48	25.6	285.1	4.58	2.28	15.9	351.6	7.36	2.39	14.8	376.7	10.57
0128	0142	3.88	17.8	209.6	1.00	2.66	16.0	210.6	1.50	4.66	11.5	285.3	5.08	3.14	19.6	349.2	7.40
0004	0004	2.68	20.9	278.5	2.98	1.23	18.8	332.4	3.87	1.08	15.5	266.7	5.26	0.89	16.2	188.4	2.00
0025	0023	6.00	307.1	448.4	0.34	1.96	103.0	448.1	0.75	1.24	35.5	503.1	1.76	2.03	45.4	562.7	0.31
0079	0082	2.92	72.4	427.7	0.68	1.57	5.3	436.2	3.50	2.51	28.1	450.9	7.85	2.53	30.3	491.0	10.27
0063	0063	4.06	57.5	511.8	2.52	3.44	25.2	413.4	4.41	4.86	23.4	480.4	4.19	4.26	7.0	542.8	5.89
0042	0077	2.00	8.2	433.2	0.88	3.23	37.8	345.8	2.22	3.75	55.1	397.1	2.37	3.84	34.6	468.6	3.78
0151	0167	3.50	67.1	324.6	0.96	6.06	9.4	348.2	5.00	1.88	20.0	383.6	7.35	2.37	23.8	433.4	9.28
0124	0133	1.92	32.1	425.6	0.66	1.28	10.1	330.3	1.35	1.83	9.9	340.5	5.88	1.92	8.0	391.7	8.94
0124	0137R	2.06	38.0	413.9	0.74	1.24	10.1	370.3	1.40	1.78	9.1	321.2	5.72	1.85	6.5	380.2	9.45
0127	0134	3.08	60.9	377.3	0.66	1.95	9.5	333.3	1.73	2.49	9.9	344.2	6.76	2.41	6.8	391.3	9.82
0153	0165	21.68	88.5	347.7	0.66	14.43	30.7	303.7	1.89	16.31	27.1	347.3	5.80	19.60	20.3	426.4	9.41
0044	0041	2.18	21.5	547.3	0.78	1.87	5.3	421.3	3.81	1.80	5.9	477.4	4.95	1.08	3.5	571.5	5.09
0140	0154	18.40	21.5	349.9	0.70	11.20	5.3	383.7	1.85	1.64	3.5	435.7	4.83	1.28	2.6	486.2	5.89
0140	0157R	13.70	45.0	320.9	0.64	10.77	12.1	356.9	1.39	1.74	10.0	404.7	3.52	1.17	3.1	454.4	4.95
0053	0054	6.60	80.9	398.6	0.64	3.85	54.9	362.2	2.37	2.92	57.7	425.4	2.31	3.01	54.2	503.2	3.74
0100	0108	4.94	42.4	405.0	0.54	2.90	12.9	339.3	1.42	4.12	31.0	382.7	5.19	4.08	36.7	443.0	7.76
0100	0111R	5.26	32.8	363.2	0.54	3.44	19.3	338.3	1.42	4.34	42.4	357.9	4.74	3.80	25.5	459.1	2.24
0017	0018	4.70	150.9	286.8	0.30	5.21	59.5	333.7	1.41	2.78	10.4	371.8	1.23	4.11	55.8	366.9	1.14
0162	0175	7.72	119.2	237.5	0.54	3.74	29.8	357.0	4.46	4.00	39.2	412.0	7.08	4.28	51.1	461.6	9.07
0039	0043	0.24	7.1	569.4	1.30	0.76	5.9	523.6	2.45	0.96	15.5	546.1	0.66	2.38	36.7	610.8	2.94
0081	0084	4.86	57.9	326.4	0.64	1.94	9.4	332.7	4.49	2.25	33.4	344.8	5.48	2.57	47.8	411.3	7.40
0123	0130	2.36	40.4	511.4	0.90	3.07	20.8	210.2	3.00	2.38	8.3	424.0	8.66	1.91	6.8	498.3	2.10
0010	0010	2.62	59.6	475.1	0.32	3.62	35.3	362.6	3.11	2.61	27.8	327.6	1.88	3.12	22.8	501.0	2.85
0118	0127	3.56	54.7	675.4	0.60	2.07	23.1	446.6	1.29	1.11	9.1	411.5	3.90	2.03	27.3	474.6	6.73
0088	0091	2.46	46.7	403.7	0.74	5.29	59.8	305.7	1.95	3.03	56.5	343.5	4.26	2.58	23.9	462.2	11.35
0088	0098R	2.60	56.2	399.5	0.74	3.34	66.8	297.7	1.96	2.29	64.2	342.0	4.24	2.47	26.7	442.9	9.63
0006	0006	1.64	7.5	359.3	0.80	1.85	5.6	333.7	5.55	1.08	5.8	390.2	2.54	3.08	6.6	469.7	4.95
0103	0110	2.08	43.5	379.6	0.56	2.22	25.9	335.4	2.07	2.10	25.5	367.6	6.78	2.22	22.9	456.6	11.29
0029	0031	4.32	144.3	241.0	0.28	1.52	40.5	233.1	0.95	1.69	42.0	292.9	1.65	1.77	47.6	366.3	2.88
0057	0057	8.38	122.1	302.3	0.12	5.73	96.0	233.8	0.26	1.78	101.9	303.0	1.22	2.26	99.3	332.6	2.50
0097	0102	4.12	111.4	205.9	0.54	2.45	45.5	294.2	2.39	2.20	24.0	368.4	7.18	1.66	17.1	445.2	10.62
0157	0180	2.46	26.8	260.1	0.68	1.98	14.5	278.1	2.27	1.54	7.7	337.5	5.90	0.91	4.0	402.9	8.09
0011	0011	5.00	160.0	416.6	0.36	3.83	77.8	325.5	0.72	3.33	61.4	385.2	3.71	3.67	49.1	476.1	2.40
0011	0016R	2.60	54.5	500.4	0.50	2.42	22.9	356.1	1.92	2.40	21.8	418.2	2.08	2.70	15.0	472.8	3.44
0065	0065	4.96	189.0	417.5	0.86	2.64	59.9	367.9	1.46	2.90	54.6	453.8	2.22	2.64	24.8	558.7	5.18
0015	0015	1.54	33.8	519.5	1.08	1.44	7.3	372.8	2.84	1.92	12.3	447.2	4.12	2.01	6.4	510.0	3.93
0104	0109	2.16	50.6	389.7	0.78	1.62	15.3	313.2	1.86	1.55	11.3	371.3	7.61	1.41	5.3	406.8	11.06
0052	0053	1.94	31.2	426.2	0.58	2.27	10.4	362.8	5.26	2.46	7.7	400.9	4.02	1.91	7.5	416.8	3.83
0092	0094	2.36	80.9	316.9	0.46	1.14	2.3	346.2	4.29	0.80	3.5	394.0	1.86	0.75	9.6	459.1	10.14
0014	0014	19.52	3.6	407.6	6.74	7.40	1.8	332.0	1.97	2.76	35.8	458.0	0.73	2.48	12.7	389.2	3.05
0054	0056	2.66	63.4	384.4	0.48	2.20	12.7	385.5	3.24	2.02	10.3	402.3	3.04	2.15	9.2	455.5	3.97
0131	0141	4.50	71.9	394.3	0.44	3.09	40.1	374.2	1.65	3.96	61.1	432.2	4.94	4.39	96.3	469.5	5.77
0019	0020	5.28	136.5	211.4	0.28	1.84	43.5	235.6	1.82	1.44	13.1	305.2	2.90	1.53	17.1	349.8	4.34
0055	0055	2.58	15.0	368.7	0.50	1.65	8.6	301.9	1.74	1.65	11.1	326.6	2.20	2.19	26.8	368.3	2.52

CAR#	RUN#	----STEADY STATE-15 MPH---- HC	CO	CO2	NOX	----STEADY STATE-30 MPH---- HC	CO	CO2	NOX	----STEADY STATE-45 MPH---- HC	CO	CO2	NOX	----STEADY STATE-60 MPH---- HC	CO	CO2	NOX
0109	0116	4.46	53.1	359.2	0.59	2.43	23.0	347.9	2.68	1.64	1.5	425.6	14.21	1.96	4.1	487.1	16.16
0117	0126	4.14	57.0	246.4	0.48	1.82	19.6	264.5	1.06	1.70	11.4	311.6	1.03	1.58	8.6	353.8	7.36
0147	0166	47.44	8.2	402.0	2.99	41.66	28.2	377.2	4.85	36.70	30.2	409.3	8.51	41.92	32.6	486.1	8.51
0016	0019	18.60	4.9	336.6	0.16	2.33	5.8	421.3	4.70	1.56	10.4	379.7	2.25	6.59	11.8	610.1	2.43
0163	0179	2.04	4.6	455.0	0.92	1.73	5.8	389.8	2.54	3.44	64.5	382.1	3.14	3.94	84.3	452.8	5.67
0166	0184	1.42	8.2	216.5	0.66	0.82	6.4	152.6	2.33	0.59	3.5	153.7	4.47	0.65	4.3	173.0	5.39
0103	0115	4.58	62.8	377.8	0.52	2.14	10.4	321.9	1.94	3.55	71.8	328.5	2.92	4.22	95.1	393.2	4.74
0106	0120R	5.00	75.5	371.2	0.38	2.01	17.4	293.0	1.14	3.39	71.2	307.6	1.89	3.96	96.1	377.9	0.96
0170	0187	13.86	59.6	234.6	1.54	4.98	29.8	391.3	13.17	5.35	72.1	300.9	5.62	3.15	54.8	410.1	7.80
0090	0092	1.88	60.6	304.2	0.42	1.01	7.5	238.3	1.13	1.06	3.1	274.8	5.62	0.96	2.6	317.3	8.93
0036	0037	1.00	41.1	308.9	0.48	0.75	9.9	244.9	1.38	0.73	1.8	334.0	2.07	0.59	7.9	365.1	3.03
0068	0068	4.74	51.0	419.9	1.24	1.94	5.8	368.0	2.37	3.03	17.7	405.8	3.09	2.75	15.6	494.4	4.60
0023	0025	4.36	73.2	353.1	0.56	1.99	20.9	277.6	0.95	2.06	22.8	296.8	3.87	2.48	69.0	323.5	3.14
0048	0048	2.80	42.8	292.5	0.40	2.39	45.2	338.7	1.23	2.10	24.9	292.6	1.80	1.48	8.6	380.0	2.90
0047	0045	4.60	186.7	310.8	0.28	2.58	88.8	176.0	0.21	2.21	47.1	210.4	0.99	2.13	48.9	204.3	1.39
0098	0103	0.46	5.7	345.5	0.64	0.39	4.0	209.4	1.23	0.90	10.2	236.2	4.02	1.07	11.4	307.0	6.88
0003	0003	0.32	0.6	495.9	0.60	0.14	0.9	444.3	1.54	0.50	5.8	442.0	4.37	0.95	25.4	511.8	1.89
0038	0039	1.14	52.4	252.1	0.46	0.52	16.2	196.3	0.98	0.57	8.7	169.9	1.34	0.87	8.5	244.7	2.85
0102	0107	0.84	10.6	268.2	0.70	0.66	5.3	222.7	1.72	0.85	10.2	200.7	0.77	0.82	6.1	250.3	6.43
0046	0042	0.56	29.9	309.0	0.50	0.21	5.3	270.1	1.38	0.56	5.5	272.2	2.08	0.69	5.3	263.0	3.23
0077	0080	3.94	82.0	185.2	0.44	2.08	35.0	178.3	0.71	2.14	35.2	190.4	2.32	2.22	34.7	221.7	3.48
0095	0100	2.58	56.2	124.3	0.52	0.93	17.5	132.4	0.79	2.06	58.1	156.7	1.16	1.40	33.9	216.9	3.03
0066	0066	1.78	26.8	224.1	0.70	0.91	13.4	198.5	0.97	0.99	12.4	203.1	1.74	0.95	7.3	255.2	2.13
0037	0038	3.08	102.7	160.2	0.22	1.36	42.3	172.8	0.64	1.47	35.6	177.5	1.32	0.88	5.7	270.5	2.89
0121	0132	10.26	84.4	169.0	0.22	5.84	10.1	189.7	1.25	5.05	62.4	127.4	0.34	3.24	4.7	220.4	4.02
0002	0028	15.44	46.0	165.3	0.62	15.54	14.3	165.0	1.91	15.82	10.1	169.2	4.00	26.06	45.8	197.7	1.51
0122	0131	4.38	11.9	206.5	0.96	0.88	4.1	179.3	1.51	0.63	3.5	168.4	3.17	0.61	1.7	203.8	5.84
0027	0030	13.54	158.3	130.6	0.08	2.86	97.8	133.2	0.26	2.57	89.7	156.7	0.67	2.66	102.3	175.7	0.77
0009	0009	0.92	18.0	398.0	1.14	0.75	2.7	272.7	2.13	0.79	5.1	148.4	2.46	1.05	1.3	272.7	3.90

		----STEADY STATE-15 MPH----				----STEADY STATE-30 MPH----				----STEADY STATE-45 MPH----				----STEADY STATE-60 MPH----			
CAR#	RUN#	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX
0169	0179	3.02	117.6	493.3	0.60	1.77	46.1	315.3	0.56	0.73	5.3	382.0	2.40	0.59	4.9	453.4	4.69
0029	0032	4.36	48.4	1016.1	6.68	2.28	22.5	424.9	1.55	2.19	14.3	466.7	4.18	1.82	11.7	464.0	8.71
0143	0153	4.62	103.7	404.6	0.78	2.42	33.9	377.1	1.42	2.20	13.4	471.5	7.06	1.57	4.7	516.5	13.54
0023	0024	8.40	135.0	290.5	0.24	4.77	113.4	243.6	0.38	3.30	74.0	319.0	1.99	2.77	50.6	410.6	5.25
0023	0025R	7.24	136.3	318.0	0.30	5.24	126.9	256.3	0.40	3.24	75.6	320.9	2.18	2.61	49.3	413.9	5.91
0037	0040	5.44	106.9	458.4	0.48	3.43	98.0	291.3	0.34	2.76	61.6	338.3	1.96	2.50	35.9	438.3	6.01
0003	0003	5.20	83.1	392.4	0.26	3.71	62.9	296.4	0.39	2.74	57.9	285.8	1.80	2.42	54.7	328.6	2.28
0041	0045	3.16	141.0	241.4	0.12	2.08	70.5	232.5	0.64	1.56	38.1	252.6	2.06	1.97	50.1	393.0	5.84
0012	0012	23.68	136.9	337.1	0.18	13.11	79.2	320.5	0.81	6.44	103.7	335.7	1.18	4.01	91.9	437.5	3.01
0168	0178	15.88	177.7	450.3	2.34	6.95	65.7	326.7	1.47	3.64	77.1	383.7	3.57	3.58	68.4	454.0	7.47
0116	0126	4.72	56.8	400.6	0.38	2.35	3.7	374.8	2.69	3.62	37.6	395.5	4.70	2.70	18.6	433.0	8.06
0072	0078	4.10	54.4	427.6	0.18	4.55	38.6	418.1	2.17	3.80	37.7	380.8	3.96	3.77	35.4	495.7	7.20
0072	0082R	4.20	57.7	444.9	0.28	4.42	41.4	396.8	1.93	3.67	37.9	459.6	4.04	3.91	36.8	491.9	7.49
0158	0168	1.28	78.3	919.3	0.88	1.02	59.2	501.1	0.54	0.94	45.5	508.5	1.39	0.98	42.2	531.4	4.64
0145	0155	4.47	87.4	522.6	1.14	2.16	15.0	410.1	2.17	1.92	12.7	497.3	4.82	2.45	15.8	535.2	10.05
0098	0106	0.30	4.4	379.8	0.60	0.44	2.2	178.9	0.56	0.57	4.8	189.1	1.15	0.79	18.1	133.9	1.02
0117	0127	2.06	40.9	599.4	0.66	0.39	6.8	502.8	1.41	0.74	4.2	568.7	3.48	0.42	4.6	592.4	8.22
0142	0152	2.44	55.2	457.1	0.60	0.85	2.9	390.6	1.24	0.69	3.0	455.0	4.77	0.65	4.3	485.6	7.52
0150	0160	2.02	31.4	515.3	0.62	1.91	9.8	292.1	1.63	2.20	23.0	338.0	4.76	2.17	17.1	434.4	9.92
0153	0163	3.26	25.4	532.9	0.50	0.96	2.2	350.8	2.13	0.92	3.6	453.0	6.48	1.23	10.4	461.7	2.64
0155	0165	5.00	166.5	295.8	0.24	0.59	16.3	382.8	0.62	0.48	13.0	431.7	1.47	0.90	15.0	443.9	3.78
0163	0173	3.00	73.2	732.5	3.84	1.16	6.2	442.5	1.23	1.14	4.8	429.2	3.76	0.89	4.3	491.7	9.01
0006	0004	4.04	119.1	366.5	0.78	3.10	42.0	353.5	3.85	2.69	37.1	390.7	7.55	1.97	28.8	444.6	10.43
0106	0115	0.82	5.5	552.6	0.88	1.58	6.0	344.0	2.48	1.94	22.8	393.7	5.25	1.96	34.3	362.6	8.00
0122	0132	4.24	100.1	316.7	0.34	1.86	12.6	400.2	3.00	1.60	25.7	243.6	2.44	1.51	8.2	481.1	8.85
0147	0157	3.06	104.7	412.4	0.26	2.40	17.5	363.9	3.42	2.81	45.2	443.6	5.70	2.37	27.5	489.0	9.31
0011	0011	3.28	72.1	426.0	0.24	2.38	18.4	298.0	1.34	1.60	15.0	328.3	3.20	1.68	10.9	398.4	6.24
0104	0113	2.38	66.9	450.3	0.18	1.56	14.7	333.9	0.42	1.26	10.4	376.2	0.72	1.96	26.7	450.7	2.50
0107	0116	1.60	23.2	415.0	1.30	1.47	4.6	353.1	2.19	1.78	4.1	406.6	7.32	2.00	12.4	470.9	11.22
0125	0135	5.06	172.0	376.4	0.94	1.67	23.0	496.1	2.00	1.86	30.1	568.1	5.05	2.32	48.6	640.9	8.12
0013	0013	4.06	131.8	412.1	0.32	3.30	66.9	338.0	0.70	3.42	44.3	371.6	1.78	3.09	43.0	436.2	4.95
0043	0048	4.72	70.4	533.9	0.94	1.22	24.9	354.5	0.98	2.54	12.1	395.4	5.59	1.13	13.7	461.4	6.70
0057	0063	2.40	27.2	490.7	0.46	1.49	5.5	335.8	1.03	2.01	23.5	387.0	3.12	2.06	18.6	436.0	5.18
0059	0065	25.86	324.3	703.4	1.98	8.27	208.4	338.3	0.27	13.52	145.3	375.4	0.63	4.97	109.0	441.5	1.77
0035	0038	5.84	98.9	322.8	0.30	3.24	17.5	364.0	2.11	3.32	27.4	386.6	3.68	3.03	20.7	460.7	4.75
0035	0043R	5.18	89.2	325.3	0.36	2.98	33.4	271.3	0.86	3.08	25.5	315.3	1.95	2.24	14.3	400.1	3.79
0078	0086	2.22	25.0	261.4	0.40	1.96	14.1	220.8	1.27	2.38	12.6	293.3	6.22	2.51	8.8	403.2	8.52
0105	0114	6.90	139.8	349.2	0.16	2.31	59.7	318.4	0.48	3.24	41.5	318.3	1.96	3.35	36.1	435.9	4.41
0042	0047	2.34	33.2	333.7	0.36	1.68	11.0	361.4	1.15	1.78	12.4	415.6	2.32	2.18	16.2	444.9	4.40
0097	0105	11.06	132.9	705.5	7.48	4.23	65.0	275.9	0.79	3.10	46.9	190.6	1.21	2.13	34.3	146.6	0.99
0112	0122	5.62	111.7	280.8	0.42	7.48	32.7	351.4	2.38	2.76	18.8	454.1	7.01	2.43	14.0	425.6	7.32
0119	0128	2.68	79.7	197.8	0.94	1.90	37.6	239.1	2.14	1.22	15.8	289.4	1.32	1.13	15.8	408.0	10.01
0007	0007	3.82	44.9	341.5	0.38	6.25	125.6	294.5	0.39	6.88	168.5	317.7	0.65	6.95	188.2	387.0	1.13
0015	0015	5.76	143.2	304.2	0.28	2.63	27.1	403.3	1.04	2.90	36.8	459.6	2.00	2.95	35.3	461.6	3.53
0060	0066	5.42	90.2	364.7	0.54	3.40	29.9	344.2	2.01	3.02	38.0	238.3	1.62	3.30	28.9	390.6	5.51
0141	0151	4.48	61.[illegible]	[illegible]6.5	0.28	2.92	32.0	337.9	[illegible]	4.21	72.5	358.3	2.65	3.92	58.5	438.8	6.07
0081	0089	6.40	146.6	296.7	0.10	3.62	50.3	298.8	[illegible]	[illegible]	55.0	280.5	1.58	3.31	42.4	407.9	5.24
0096	0094	4.90	65.0	260.0	0.26	2.62	29.3	305.3	1.19	1.58	12.6	341.9	2.70	1.57	21.1	391.1	4.08
0087	0095	26.12	47.5	398.9	2.16	10.21	4.6	352.0	4.07	2.27	2.3	451.5	6.92	0.69	3.8	577.2	12.04
0090	0098	5.96	162.7	574.1	3.96	2.53	71.0	245.3	1.44	2.31	51.9	147.2	0.76	1.62	38.3	151.4	1.50

CAR#	RUN#	----STEADY STATE-15 MPH---- HC	CO	CO2	NOX	----STEADY STATE-30 MPH---- HC	CO	CO2	NOX	----STEADY STATE-45 MPH---- HC	CO	CO2	NOX	----STEADY STATE-60 MPH---- HC	CO	CO2	NOX
0005	0005	4.42	125.9	325.3	0.20	5.31	66.3	328.1	0.42	3.49	80.1	383.1	0.93	2.92	50.3	411.0	2.49
0063	0069	5.78	131.6	272.5	0.12	3.79	54.7	326.9	0.93	4.16	65.0	392.1	2.09	3.59	51.8	345.2	2.77
0084	0092	12.52	157.6	499.2	2.04	4.79	66.4	241.0	0.67	3.78	48.8	182.6	1.15	2.73	37.2	144.0	1.31
0137	0147	4.23	84.3	236.1	0.16	2.10	46.9	200.9	0.90	1.93	28.3	255.6	3.94	1.74	26.0	351.6	7.33
0028	0031	1.76	43.0	342.1	0.48	1.60	32.9	248.6	1.14	1.56	29.5	275.3	2.35	1.45	18.7	352.6	4.03
0038	0041	8.16	149.1	199.7	0.20	4.80	111.7	255.6	0.56	4.39	111.7	300.3	1.16	3.88	149.1	403.6	1.77
0135	0145	3.10	73.1	420.0	0.66	1.94	41.9	293.3	1.53	2.12	52.1	332.3	1.18	1.83	31.1	425.0	3.10
0030	0033	10.58	1.1	297.8	1.04	9.17	2.6	304.7	2.34	8.52	3.6	405.4	3.76	2.32	5.5	462.1	8.13
0160	0170	4.18	93.7	250.5	0.26	3.15	72.6	231.5	0.36	4.16	94.3	283.7	0.80	3.79	86.1	338.0	2.27
0054	0059	5.08	122.7	289.7	0.22	2.54	55.2	337.5	0.41	2.02	38.3	449.9	1.20	1.65	32.9	461.1	2.81
0024	0026	3.98	124.0	345.7	0.38	2.22	43.5	252.7	0.48	1.70	49.2	284.1	1.04	1.67	49.6	332.1	1.79
0131	0141	5.30	138.0	669.7	1.56	2.67	50.8	367.8	0.95	2.72	46.7	448.2	3.23	2.36	54.3	491.9	4.61
0159	0169	2.94	102.9	469.7	0.62	3.05	66.6	379.2	0.91	3.78	75.5	410.7	1.96	3.28	59.9	720.7	3.59
0126	0136	1.72	70.3	301.5	1.06	1.07	12.2	303.5	2.16	1.00	10.0	387.8	6.05	0.88	7.0	451.9	10.18
0152	0162	5.24	159.3	437.7	0.22	2.60	68.1	335.4	0.39	1.40	7.0	525.4	4.20	1.05	7.5	574.2	8.60
0050	0055	4.88	169.3	319.0	0.20	2.18	44.7	327.3	0.68	2.17	39.2	410.2	2.33	3.12	84.1	410.6	2.37
0089	0097	3.78	122.0	316.4	0.28	5.73	124.2	272.2	0.40	4.75	132.3	294.0	0.66	5.18	175.6	361.4	0.59
0109	0118	4.92	77.4	280.1	0.24	2.14	17.8	314.9	1.84	2.31	30.0	379.1	3.42	2.53	42.1	441.3	5.55
0108	0117	2.70	37.9	400.3	1.06	1.57	8.2	364.2	3.13	1.24	5.4	521.7	6.98	0.99	8.7	516.3	11.85
0108	0121R	2.62	52.1	374.1	0.32	1.77	11.1	373.6	2.84	1.15	5.5	471.6	6.95	1.06	18.3	488.9	10.22
0065	0071	2.80	81.2	265.8	0.48	2.70	37.9	311.1	3.45	2.22	32.1	431.6	8.00	2.58	37.7	462.3	10.44
0010	0010	0.94	3.8	304.3	0.50	1.04	56.9	197.1	1.58	2.12	68.3	272.9	0.43	2.09	68.2	192.5	1.00
0075	0083	0.40	2.7	568.0	0.76	0.73	2.6	394.6	1.19	1.30	3.9	393.0	5.35	1.43	11.3	457.8	7.62
0088	0096	1.00	10.6	389.3	0.76	1.44	2.5	277.0	2.60	1.32	2.8	308.8	4.38	0.77	5.1	416.1	3.57
0099	0107	1.12	25.9	662.6	0.92	0.82	17.5	432.3	0.59	1.74	23.3	334.8	1.36	2.50	51.4	393.2	1.99
0099	0111R	1.43	35.4	649.4	0.72	1.11	23.2	404.5	0.56	2.17	36.9	320.2	1.22	2.57	54.1	227.0	1.71
0103	0112	13.08	4.9	245.8	0.58	10.59	2.0	190.8	1.69	7.32	2.3	167.5	1.98	3.11	3.3	194.7	2.36
0123	0133	0.74	5.8	434.9	0.86	1.14	2.5	280.6	1.87	1.74	9.0	334.7	5.08	1.71	9.0	425.2	9.62
0014	0014	1.74	36.5	493.9	0.42	1.44	9.7	239.4	1.07	2.14	31.3	310.2	2.85	2.21	32.6	389.8	5.53
0052	0057	3.16	125.5	384.3	0.38	1.71	19.7	397.2	1.28	2.17	12.6	480.1	7.07	2.14	21.1	491.6	8.86
0080	0088	1.04	2.2	566.6	0.84	1.41	2.9	449.3	3.22	1.84	5.7	520.9	8.76	1.89	8.1	540.2	11.97
0016	0016	2.32	62.6	385.5	0.40	2.05	7.5	340.5	1.39	2.89	5.0	420.7	6.45	2.66	6.7	442.6	9.49
0016	0019R	2.24	44.7	381.9	0.38	1.88	48.0	339.4	1.87	2.54	4.1	370.9	7.20	2.41	5.9	436.5	10.77
0040	0044	2.12	32.2	457.5	0.42	2.71	7.0	357.3	2.86	2.84	4.6	414.7	6.76	2.72	8.4	502.3	11.28
0046	0051	2.74	57.3	492.7	0.30	2.06	27.8	375.4	0.87	2.02	10.6	481.2	6.31	1.92	26.2	493.3	7.05
0096	0104	1.98	52.5	412.1	0.30	0.69	2.5	331.0	0.59	0.85	3.2	347.0	2.19	0.60	4.0	395.3	3.38
0082	0090	8.70	178.8	1047.5	4.02	2.05	41.6	611.9	1.15	2.22	47.6	336.7	0.86	1.79	38.2	299.2	0.84
0136	0146	0.70	11.1	366.9	0.60	0.77	8.7	228.7	1.56	1.22	48.7	250.7	2.10	0.97	6.3	368.3	10.77
0149	0159	3.64	3.6	503.2	1.04	2.27	4.4	329.1	1.41	2.86	5.4	376.2	5.80	2.55	5.3	438.0	9.00
0044	0049	6.82	38.3	352.8	0.36	2.06	6.2	379.9	1.56	1.44	3.5	371.9	1.10	0.99	4.2	409.3	1.76
0045	0050	2.76	85.0	362.7	0.18	3.38	62.6	289.4	0.90	2.51	22.4	341.6	3.87	2.95	37.8	425.6	5.28
0053	0058	3.86	84.6	415.5	0.24	1.49	14.6	445.8	0.79	1.79	13.0	517.3	1.89	2.23	24.4	521.7	3.11
0053	0061R	3.57	61.3	430.5	0.40	1.27	8.7	456.5	0.91	1.38	15.5	518.1	2.39	2.42	25.6	497.8	4.02
0001	0001	4.78	125.3	232.2	0.14	2.58	41.4	262.7	1.18	1.90	21.9	293.4	2.23	2.17	35.1	305.0	2.80
0022	0023	5.04	148.5	306.1	0.14	3.73	45.1	294.6	1.51	3.05	18.5	375.4	4.44	3.02	21.9	423.6	7.48
0047	0052	12.06	196.4	284.9	0.22	23.73	84.5	353.7	1.10	64.39	29.2	369.5	1.72	28.22	62.4	487.8	5.29
0091	0099	1.58	79.4	279.5	0.40	2.46	71.4	184.8	0.40	2.24	66.1	220.1	1.14	1.92	53.3	303.5	2.96
0021	0022	2.80	38.2	458.6	0.92	2.30	18.0	406.4	2.19	2.58	30.7	499.6	3.37	2.38	31.8	517.2	4.97
0058	0064	2.16	24.0	390.6	0.52	1.86	21.7	277.0	2.54	1.88	21.7	334.8	4.32	1.91	24.8	411.7	7.99
0079	0087	14.06	9.1	269.2	1.36	5.69	16.2	212.0	1.00	1.94	7.9	248.9	2.56	1.60	5.9	370.4	5.20

CAR#	RUN#	----STEADY STATE-15 MPH---- HC	CO	CO2	NOX	----STEADY STATE-30 MPH---- HC	CO	CO2	NOX	----STEADY STATE-45 MPH---- HC	CO	CO2	NOX	----STEADY STATE-60 MPH---- HC	CO	CO2	NOX
0095	0103	12.14	163.6	679.9	5.26	1.55	59.1	259.0	0.15	3.01	49.3	156.4	0.17	2.06	37.3	124.5	0.30
0032	0035	7.62	134.4	298.5	0.14	4.62	59.0	333.1	1.75	3.26	48.4	368.7	3.98	3.06	44.4	379.8	5.32
0067	0073	3.42	19.5	242.1	1.42	3.58	63.2	250.4	1.74	3.22	63.8	270.1	2.58	3.06	74.8	345.4	3.61
0008	0008	6.28	98.0	265.5	0.04	3.32	18.3	332.6	2.01	3.12	30.8	418.1	0.91	2.92	28.6	439.8	5.04
0034	0037	15.94	69.3	370.1	0.58	5.1[illegible]	43.0	358.7	1.33	11.56	36.3	444.2	1.71	20.56	27.8	459.6	3.36
0146	0156	5.32	56.5	261.2	0.82	12.21	23.4	318.8	5.14	3.51	21.0	407.9	8.26	3.15	22.5	462.8	12.48
0170	0180	8.54	144.5	340.8	1.22	3.56	44.4	299.5	1.17	3.38	43.1	349.3	2.68	3.12	37.5	445.4	4.05
0099	0099	7.22	41.1	367.1	0.38	3.12	16.3	480.1	1.12	2.82	30.1	549.2	1.49	1.67	33.4	569.0	1.83
0100	0108	4.42	75.3	223.3	0.18	2.29	58.4	154.2	0.17	1.56	36.6	182.5	1.04	1.81	40.0	229.1	0.90
0036	0039	3.08	65.0	367.7	0.42	2.10	29.3	296.6	1.37	1.66	17.5	398.1	3.83	1.71	23.2	450.5	6.21
0167	0177	4.14	56.7	237.9	0.94	2.46	26.9	269.7	3.57	2.06	26.0	312.6	4.49	1.79	19.6	394.2	7.54
0157	0167	2.14	25.7	391.3	0.44	1.19	7.2	376.9	1.90	1.28	11.0	505.1	2.82	1.07	12.8	425.5	3.28
0039	0042	3.13	58.8	425.6	0.82	1.35	7.1	314.9	2.45	1.73	31.1	365.2	2.93	1.62	48.9	421.7	4.22
0039	0046R	2.28	58.6	343.5	0.68	1.50	11.5	325.7	1.94	1.97	39.1	368.9	2.63	2.41	88.1	404.0	2.75
0018	0018	1.56	49.6	387.3	0.48	1.70	29.1	424.3	2.[illegible]	2.35	22.6	517.6	8.36	2.27	34.3	522.1	10.88
0114	0124	3.24	14.5	586.0	0.78	3.71	64.2	455.3	1.[illegible]	3.57	77.6	526.7	2.55	3.54	76.5	558.0	5.00
0051	0056	1.18	20.9	774.4	1.32	1.27	4.4	495.5	1.55	1.88	8.0	556.4	6.90	1.88	17.1	613.7	9.70
0140	0150	1.32	26.1	585.2	0.32	0.74	4.0	413.4	1.02	1.78	6.4	478.1	6.83	1.71	7.4	529.5	11.04
0002	0002	1.12	17.1	502.6	0.46	0.45	3.8	497.1	0.69	1.18	3.5	441.0	2.88	1.39	9.5	463.6	5.30
0020	0021	1.88	47.8	372.6	0.46	2.11	12.3	344.9	3.46	1.83	8.4	392.9	7.65	2.14	10.8	446.8	10.61
0083	0091	6.48	122.6	317.5	0.46	3.35	46.8	243.2	1.67	3.16	29.8	171.6	1.22	2.23	20.0	145.1	1.50
0151	0161	0.78	6.1	510.5	0.74	0.97	2.9	346.5	1.62	1.88	7.9	379.2	5.84	1.66	4.7	451.2	10.34
0062	0068	2.48	73.7	523.8	0.30	1.38	17.1	425.2	1.54	1.12	12.0	492.4	1.48	0.59	8.2	481.3	3.25
0120	0130	4.70	101.9	412.8	0.34	1.28	5.0	413.6	1.51	1.56	8.4	606.7	4.54	1.09	4.7	546.9	8.74
0128	0138	0.88	6.4	813.3	0.66	0.90	9.0	573.6	0.97	2.04	12.4	546.4	6.25	0.51	6.4	181.8	5.61
0064	0070	2.53	49.7	418.5	0.34	2.09	28.0	369.0	1.26	2.30	26.9	426.8	5.05	2.35	15.5	496.3	9.88
0066	0072	2.54	57.4	434.0	0.32	1.84	3.9	354.7	2.16	2.19	16.5	341.4	5.31	2.68	30.3	439.8	6.03
0073	0079	1.56	3.3	496.4	0.58	1.17	4.0	376.8	1.25	1.05	3.5	443.8	3.49	0.63	3.9	481.1	5.23
0027	0029	3.38	37.0	348.9	0.92	1.69	4.3	368.4	2.59	2.29	18.6	409.9	5.16	2.61	22.6	445.2	7.82
0074	0080	5.68	74.9	460.9	0.40	4.04	56.4	380.9	1.01	3.00	41.0	337.1	2.30	3.18	38.5	540.3	4.69
0019	0020	6.04	98.5	256.4	0.32	3.30	36.9	282.7	2.45	3.03	24.2	343.1	5.04	3.29	33.5	397.9	6.24
0071	0077	8.35	130.3	218.5	0.24	3.07	28.4	379.2	3.31	3.20	49.0	433.8	6.29	4.19	96.3	457.6	5.89
0071	0081R	7.62	80.9	356.2	0.52	2.93	25.2	409.3	3.70	3.17	48.6	429.2	6.08	4.04	82.5	458.9	6.18
0148	0158	7.54	135.0	366.2	0.20	2.31	64.8	381.4	0.76	1.34	7.7	533.3	6.88	1.71	20.2	559.3	12.22
0070	0076	1.86	21.6	569.1	0.62	2.47	38.1	339.0	0.60	1.61	21.8	213.6	1.16	1.19	19.0	174.7	1.36
0076	0084	1.66	8.2	440.3	0.64	2.34	11.8	360.9	2.96	2.37	13.2	397.2	4.56	2.53	16.0	426.2	6.85
0115	0125	81.76	192.8	184.5	0.18	22.18	141.8	229.6	1.06	2.92	33.7	324.9	4.82	2.38	65.0	415.2	1.53
0102	0110	1.90	36.0	359.3	0.40	1.55	18.4	297.7	1.10	1.24	15.7	318.0	2.22	1.48	27.3	356.7	2.95
0144	0154	22.60	284.2	272.0	0.02	7.19	173.5	243.0	0.23	4.10	133.4	364.1	2.68	3.72	133.1	445.7	4.73
0156	0166	3.52	116.2	252.6	0.40	1.84	54.9	225.9	1.14	1.22	18.0	307.3	6.19	1.33	28.8	381.1	8.23
0048	0053	3.70	90.1	274.8	0.34	1.98	40.8	336.2	0.85	2.80	61.6	356.5	3.70	1.29	23.9	508.3	3.92
0061	0067	3.78	83.2	373.5	0.28	2.95	33.8	409.2	1.31	1.98	12.6	518.5	4.12	3.07	31.8	542.5	6.94
0121	0131	16.80	114.8	339.3	0.54	6.13	45.6	306.1	1.21	3.70	32.0	401.0	4.42	4.06	58.7	452.6	4.30
0113	0123	2.68	65.2	260.3	0.32	2.16	60.3	252.0	1.23	2.02	51.9	307.6	3.28	2.34	44.1	416.2	6.36
0127	0137	1.18	22.8	661.0	0.68	1.47	9.3	420.9	1.18	0.89	5.7	279.5	1.27	1.80	6.5	495.1	7.63
0164	0174	1.96	18.0	609.2	0.74	1.35	2.6	387.3	1.64	1.67	7.1	515.6	5.62	1.68	7.5	549.9	10.19
0134	0144	6.10	115.8	457.2	0.38	1.91	43.2	436.2	0.77	1.31	15.0	519.0	2.17	0.84	9.2	552.9	3.80
0129	0139	3.32	67.8	585.6	1.94	2.82	27.2	390.2	2.80	2.26	9.7	436.4	7.15	1.91	5.4	507.9	10.95
0154	0164	4.90	81.9	393.1	0.58	2.23	18.0	350.6	2.27	2.72	35.9	439.8	5.78	2.37	32.3	455.7	8.31
0004	0006	1.66	29.4	507.6	0.16	1.72	43.4	342.7	0.29	1.31	5.6	419.1	3.74	1.03	3.5	445.6	6.83

CAR#	RUN#	----STEADY STATE-15 MPH---- HC	CO	CO2	NOX	----STEADY STATE-30 MPH---- HC	CO	CO2	NOX	----STEADY STATE-45 MPH---- HC	CO	CO2	NOX	----STEADY STATE-60 MPH---- HC	CO	CO2	NOX
0110	0119	62.36	420.7	392.1	0.20	14.43	221.5	251.4	0.14	5.15	161.5	306.3	0.65	6.57	93.2	433.2	3.60
0031	0034	7.28	146.7	304.9	0.18	3.80	77.1	272.8	0.56	3.00	53.0	348.8	3.32	2.37	43.3	424.1	5.80
0094	0102	5.24	60.0	344.2	0.20	2.35	4.8	309.0	0.84	2.53	31.0	318.3	2.00	3.21	54.8	318.9	1.94
0130	0140	3.56	4.4	427.8	0.62	2.15	4.8	352.2	1.35	2.21	34.4	382.7	3.88	3.07	56.2	436.5	4.58
0132	0142	3.50	8.3	337.6	0.32	2.76	10.8	355.7	1.90	3.22	41.2	361.2	3.28	3.75	61.5	419.2	4.54
0162	0172	2.92	86.7	324.7	0.16	2.23	14.3	322.0	2.39	2.55	48.4	307.2	2.36	2.96	54.7	411.3	4.99
0139	0149	2.70	37.3	279.2	0.38	1.55	10.8	322.6	1.99	1.95	30.8	341.5	4.26	2.00	25.3	409.5	7.19
0049	0054	2.94	66.6	161.7	0.22	1.86	36.8	216.0	1.34	2.71	61.0	240.4	2.16	2.07	35.6	340.8	6.00
0033	0036	2.32	24.4	223.6	0.42	2.37	14.1	231.7	2.77	3.46	64.5	236.5	1.69	3.50	66.2	301.5	2.84
0161	0171	2.38	11.1	345.4	0.80	1.24	2.6	242.9	1.78	2.40	40.4	300.3	2.76	1.61	47.0	252.7	3.01
0165	0175	3.46	34.8	381.4	0.60	2.20	27.2	271.1	3.93	2.30	44.7	330.3	7.05	1.07	12.9	128.3	4.63
0119	0129	0.20	6.9	285.1	0.40	0.21	4.8	151.1	0.39	0.41	4.4	183.6	1.72	0.58	8.8	230.0	3.88
0077	0085	2.34	4.9	248.3	2.68	1.72	2.4	173.6	2.67	0.45	3.4	233.5	5.90	0.43	14.0	323.0	8.65
0101	0109	0.93	23.6	166.3	0.38	1.05	14.5	229.8	0.77	0.56	4.7	201.0	1.42	0.44	4.8	225.9	2.38
0093	0101	1.04	11.9	194.9	0.78	0.65	9.6	148.2	1.97	0.58	12.5	129.7	2.25	0.73	14.3	154.6	3.94
0026	0028	4.14	51.9	459.8	6.56	0.74	11.4	201.2	1.19	0.92	24.3	172.4	1.90	1.04	25.7	230.2	5.03
0026	00302	0.66	13.7	263.2	0.44	0.58	12.0	204.1	1.14	0.86	24.9	185.2	2.06	0.98	28.9	238.5	4.67
0124	0134	1.84	54.5	348.5	0.46	0.91	26.9	180.3	0.39	1.64	24.9	133.2	0.46	1.18	22.5	131.2	0.72
0111	0120	1.76	103.6	180.1	0.12	1.06	63.2	141.3	0.24	1.26	72.4	160.0	0.55	1.13	56.0	238.1	2.47
0138	0148	2.98	146.8	185.0	0.04	1.49	52.6	131.4	0.22	1.46	48.2	181.5	1.06	1.27	37.0	223.2	2.90
0133	0143	4.22	102.2	139.1	0.56	1.51	46.3	116.4	0.19	1.06	19.6	183.9	1.65	0.83	5.9	240.0	4.28
0025	0027	1.55	33.7	221.9	0.76	0.89	13.9	149.9	1.62	0.86	10.1	170.8	2.65	0.71	3.8	233.3	4.41
0017	0017	2.68	58.3	298.5	1.14	1.72	41.5	174.7	1.28	1.48	20.8	228.7	3.82	1.17	11.1	282.2	6.23
0092	0100	35.36	77.5	163.4	0.70	15.61	37.3	82.9	0.16	12.64	32.5	72.3	0.16	15.22	26.3	103.3	0.83
0056	0062	0.84	27.5	225.6	0.30	1.02	18.2	224.9	0.88	0.94	9.6	268.0	2.79	0.39	3.6	342.1	3.54
0171	0181	0.64	15.3	298.0	0.84	0.95	11.2	191.6	2.91	0.92	3.1	254.3	6.78	0.82	2.5	325.0	10.73
0068	0074	1.09	31.9	232.8	0.70	1.09	22.9	203.9	2.57	1.11	2.7	280.1	6.86	0.97	2.0	346.2	10.52
0085	0093	4.06	29.9	515.2	10.30	1.52	8.7	227.6	4.49	1.64	12.9	163.1	3.42	1.11	8.0	153.1	4.24
0069	0075	0.94	41.1	226.2	0.30	1.18	33.2	241.2	1.70	0.99	6.2	293.8	6.26	0.35	5.4	245.1	5.95

CAR#	RUN#	----STEADY STATE-15 MPH---- HC	CO	CO2	NOX	----STEADY STATE-30 MPH---- HC	CO	CO2	NOX	----STEADY STATE-45 MPH---- HC	CO	CO2	NOX	----STEADY STATE-60 MPH---- HC	CO	CO2	NOX
0066	0066	3.04	105.9	519.1	0.42	1.65	22.9	404.4	1.00	2.09	49.2	389.8	1.83	1.00	7.0	478.7	6.99
0064	0064	2.06	20.5	551.9	0.72	1.45	3.0	367.3	1.85	1.70	14.6	364.3	3.74	1.19	7.5	417.5	5.80
0029	0029	9.20	110.5	415.4	0.42	3.25	37.4	358.8	1.64	2.00	7.6	391.7	6.33	3.08	2.9	459.9	13.21
0065	0065	6.73	136.9	294.4	0.26	4.18	88.6	286.8	0.66	2.67	50.4	348.4	3.64	2.21	41.8	396.4	6.52
0150	0156	2.78	109.4	226.6	0.20	2.09	54.8	234.7	0.83	2.34	48.3	292.7	2.20	2.19	45.9	335.1	3.51
0048	0048	3.30	43.8	249.5	0.34	1.99	35.5	244.4	0.84	1.67	22.9	290.9	2.78	1.88	37.2	290.8	2.94
0056	0056	10.50	151.7	296.8	0.14	3.77	39.9	314.4	1.58	3.13	25.6	374.2	6.38	2.91	22.0	450.3	10.66
0024	0024	10.94	154.0	324.0	0.18	5.08	64.7	307.8	0.43	5.41	91.4	114.6	2.20	5.16	98.1	402.4	3.75
0104	0104	8.28	140.5	280.3	0.14	3.82	68.6	317.4	1.11	3.68	69.0	333.7	2.14	3.33	73.3	379.0	3.78
0123	0133	4.10	115.6	310.0	0.24	2.51	60.5	277.9	0.31	3.59	81.4	375.0	0.69	4.46	73.3	428.4	1.36
0135	0141	0.68	20.7	727.3	0.40	0.70	20.8	429.8	0.67	0.85	24.7	485.1	2.50	0.45	9.4	531.9	6.54
0113	0113	4.04	130.1	418.8	0.28	3.10	83.5	280.9	0.41	3.58	69.6	354.2	1.88	3.53	65.5	420.8	4.83
0113	0119R	4.98	138.5	359.5	0.26	3.62	79.9	272.4	0.34	4.00	69.9	298.9	1.43	2.62	48.1	324.3	3.35
0110	0110	2.14	37.7	327.2	0.60	2.15	23.2	367.5	1.97	2.72	74.7	341.3	2.20	2.45	79.8	367.3	3.62
0003	0003	1.24	6.2	538.9	0.54	1.40	5.4	349.3	2.23	0.92	2.9	400.8	3.52	1.40	17.2	462.3	5.97
0004	0004	6.78	185.2	301.5	0.22	2.46	66.3	350.7	0.65	1.86	15.1	367.5	3.09	2.29	34.9	409.7	4.99
0055	0055	1.22	1.1	254.9	0.46	0.78	2.0	202.2	4.33	0.79	1.6	234.6	7.06	0.78	6.9	271.0	8.50
0077	0077	0.48	5.0	494.4	0.74	1.99	49.8	206.8	1.31	0.80	2.5	236.0	4.83	1.39	13.1	268.8	6.37
0105	0105	0.96	3.6	463.1	0.76	1.21	2.0	345.1	4.34	1.37	11.3	373.9	6.02	1.15	5.7	455.8	10.55
0028	0028	2.34	58.7	348.2	0.48	1.27	1.8	306.4	3.03	1.24	4.5	325.3	6.64	1.04	2.1	392.6	11.71
0084	0084	3.78	93.1	374.3	0.40	2.60	17.7	351.5	4.45	2.14	10.3	361.1	7.04	2.08	22.4	416.9	9.13
0120	0123	1.94	13.2	435.5	0.74	1.58	2.7	285.0	2.00	1.46	3.6	333.5	4.42	1.52	4.2	382.1	7.64
0140	0146	3.16	13.2	570.6	0.84	2.44	3.6	364.4	4.68	1.92	3.6	344.9	7.06	1.68	3.4	374.5	8.68
0007	0007	2.88	36.5	478.7	0.42	2.04	12.6	326.6	1.49	1.87	3.3	368.6	4.97	2.37	26.6	388.1	1.70
0073	0073	1.80	30.5	332.3	0.46	1.38	2.4	332.8	2.00	1.38	3.2	334.8	4.58	1.29	3.3	431.1	8.96
0086	0086	4.44	114.3	340.2	0.30	2.48	59.2	276.8	0.99	2.34	38.5	311.9	3.58	2.02	23.1	369.6	7.15
0089	0089	3.38	47.2	595.1	0.32	1.13	13.0	490.6	1.49	0.98	20.1	447.1	1.32	0.57	6.5	240.9	5.99
0087	0087	4.56	129.5	317.7	0.28	2.74	44.8	294.9	0.97	2.76	34.6	337.3	3.72	2.69	35.4	345.5	5.08
0103	0103	0.92	16.0	424.0	0.46	1.03	8.1	234.6	0.98	0.88	1.5	268.2	3.22	0.73	2.2	305.0	6.70
0131	0136	5.60	43.0	252.4	0.28	2.28	10.4	327.4	1.62	1.58	8.4	272.1	2.70	2.10	24.7	286.5	4.62
0067	0067	4.42	56.7	442.9	0.82	2.98	23.0	339.7	2.76	3.30	41.3	349.9	4.10	2.69	23.9	420.8	8.39
0085	0085	11.20	112.9	314.4	0.50	4.43	64.9	312.5	2.10	3.49	42.6	316.6	3.53	3.76	34.2	408.3	6.59
0095	0095	7.00	106.6	268.5	0.30	4.94	72.4	302.4	1.11	4.02	56.1	327.6	2.10	4.58	50.6	366.0	4.10
0014	0014	4.90	85.3	245.9	0.18	3.04	40.8	292.4	0.66	3.18	58.2	306.6	1.58	3.94	50.7	350.5	3.68
0068	0068	12.02	129.0	354.8	0.38	6.00	61.5	372.2	1.32	3.59	46.8	299.8	1.90	3.35	37.6	336.9	3.77
0141	0147	5.82	98.5	299.2	0.28	3.06	11.2	329.9	3.00	3.64	33.3	380.6	3.74	3.61	18.2	463.5	11.57
0006	0006	6.34	51.5	416.3	0.36	4.18	23.5	396.0	2.25	5.11	101.7	400.3	2.81	5.58	126.0	423.3	2.79
0054	0054	9.92	150.8	181.5	0.12	6.25	103.9	228.6	0.64	4.60	63.7	290.6	2.80	3.55	42.9	355.7	5.59
0072	0072	17.64	153.3	178.1	0.22	10.96	75.0	263.2	1.53	7.50	42.9	329.7	4.20	7.14	48.3	387.0	1.77
0018	0018	4.12	25.8	395.1	0.44	2.99	21.9	305.8	1.83	3.02	31.4	358.0	3.84	2.89	29.4	416.4	1.76
0070	0070	22.84	29.0	363.7	0.92	17.00	24.2	285.0	2.39	18.12	39.5	320.4	3.70	21.65	34.6	406.0	7.59
0092	0092	5.62	67.5	269.5	0.34	2.93	33.6	256.8	1.75	2.42	33.8	237.9	2.64	1.95	22.0	265.6	5.04
0063	0063	7.24	112.9	215.2	0.30	3.40	61.5	192.0	0.88	2.40	31.9	246.9	3.25	2.11	30.2	303.3	4.99
0102	0102	3.84	91.3	230.5	0.26	2.05	36.1	163.1	0.56	1.85	13.0	221.1	2.49	2.47	28.1	247.9	3.15
0107	0107	3.52	81.5	339.7	0.40	2.31	34.7	554.1	7.21	2.26	37.3	219.7	1.90	2.05	27.6	277.0	3.60
0116	0116	5.46	94.7	237.3	0.30	3.43	56.2	247.9	0.64	5.76	64.4	240.8	1.24	9.01	26.9	288.1	0.73
0008	0008	2.94	135.7	303.9	0.34	4.19	139.5	287.9	0.91	4.74	144.5	317.1	1.43	5.26	200.6	402.5	2.76
0057	0057	9.32	116.3	194.5	0.32	4.74	25.7	232.5	2.00	6.31	21.2	268.4	4.78	0.49	14.6	328.5	9.00
0039	0039	4.34	66.0	383.7	1.88	1.65	11.9	263.9	1.46	1.06	0.2	335.4	4.36	1.03	3.4	414.4	7.66
0045	0045	1.72	3.6	258.5	0.48	1.50	0.3	286.5	2.73	1.13	1.3	332.8	5.83	0.97	2.0	404.6	9.25

CAR#	RUN#	----STEADY STATE-15 MPH---- HC	CO	CO2	NOX	----STEADY STATE-30 MPH---- HC	CO	CO2	NOX	----STEADY STATE-45 MPH---- HC	CO	CO2	NOX	----STEADY STATE-60 MPH---- HC	CO	CO2	NOX
0071	0071	3.10	13.9	311.9	0.74	1.98	2.1	307.5	1.20	1.98	3.5	350.9	2.62	2.00	5.9	408.1	7.20
0115	0115	32.30	151.7	268.1	0.30	15.58	102.7	279.9	0.33	14.02	168.3	301.8	0.38	12.73	192.1	342.2	0.52
0164	0171	3.42	36.0	396.8	0.40	1.37	2.5	308.3	1.18	0.74	1.5	213.9	1.50	0.77	2.3	321.4	4.03
0127	0132	3.20	57.3	151.0	0.18	1.59	16.5	202.0	1.39	1.45	5.7	329.5	4.02	1.62	23.5	396.1	6.29
0154	0161	2.62	66.6	291.9	0.22	2.06	42.9	332.6	0.55	1.89	43.1	305.8	0.75	1.20	21.8	360.9	1.64
0020	0020	2.64	59.8	493.0	0.42	1.76	3.5	383.5	1.51	1.44	3.2	418.8	3.21	2.07	18.0	479.0	7.29
0042	0042	2.18	66.8	321.4	0.26	2.30	25.9	333.3	1.20	2.04	23.2	361.4	2.97	1.80	29.4	408.1	4.86
0169	0177	4.52	127.6	321.0	0.32	2.17	22.4	371.5	1.82	1.36	12.3	312.0	3.24	1.80	31.2	296.8	3.45
0075	0075	4.10	117.8	416.1	0.40	2.19	51.3	440.2	0.98	2.90	85.2	401.8	0.90	2.79	84.2	481.3	1.45
0081	0081	1.48	23.3	398.5	0.38	0.88	9.9	332.6	0.54	0.85	1.9	280.8	1.54	0.78	3.0	359.0	3.96
0076	0076	2.74	60.4	361.7	0.38	1.00	5.6	368.3	1.00	0.96	3.7	386.4	2.16	0.72	3.8	423.0	4.05
0083	0083	2.94	33.9	286.5	0.40	2.00	11.1	345.4	2.00	1.74	17.1	338.0	3.04	2.31	43.0	352.3	3.87
0117	0117	1.82	15.8	317.2	0.40	2.41	23.0	318.3	2.13	1.62	8.2	351.0	5.44	1.14	9.6	355.0	6.91
0117	0125R	2.12	14.7	350.3	0.38	2.35	23.9	273.1	1.70	1.80	13.3	362.1	5.11	1.34	14.3	112.0	7.24
0139	0145	3.10	62.2	342.1	0.22	2.17	38.7	422.8	0.60	1.89	41.7	488.3	1.32	2.69	70.4	509.6	1.58
0133	0138	1.28	16.5	242.3	0.34	1.34	5.9	429.7	1.65	1.32	7.5	302.1	4.48	1.53	21.1	344.3	6.38
0145	0151	3.94	79.9	229.0	0.22	2.24	14.1	230.6	1.62	2.39	16.9	360.6	3.70	2.69	37.9	403.1	5.22
0123	0127	5.26	95.6	197.3	0.20	2.66	59.9	230.9	1.17	1.72	31.9	231.1	3.34	1.42	25.6	271.4	5.66
0033	0033	4.98	58.4	278.8	0.34	2.77	54.2	186.5	0.49	2.40	60.4	220.3	0.90	0.97	52.1	278.3	1.66
0047	0047	9.14	41.9	281.2	0.34	3.08	3.5	330.9	1.54	1.25	4.9	387.3	2.34	0.91	5.0	449.8	3.86
0147	0153	2.88	57.4	230.9	0.18	2.18	48.6	259.7	0.37	3.26	53.4	580.2	0.88	4.66	58.1	342.8	1.58
0111	0111	18.92	42.2	277.7	0.74	12.34	16.1	290.9	4.15	14.38	20.5	345.2	6.74	16.84	6.8	431.4	12.10
0111	0122R	19.74	40.0	308.9	0.88	15.78	16.0	329.8	4.66	14.45	12.1	321.7	6.71	14.35	4.4	363.9	10.13
0021	0021	1.88	15.0	567.6	0.70	0.84	3.3	392.7	1.06	1.52	3.0	382.1	5.17	1.53	7.4	444.8	8.01
0027	0027	2.38	85.2	315.0	0.34	1.82	8.4	257.9	3.08	1.64	3.0	276.8	5.72	1.21	3.8	336.4	7.80
0040	0040	1.46	10.8	482.4	0.62	0.98	2.7	420.6	1.83	1.10	3.1	450.7	5.41	0.73	3.4	494.8	7.74
0052	0052	1.48	19.4	338.1	0.68	1.48	2.9	273.1	3.67	1.38	2.1	295.5	6.68	1.12	2.4	360.5	10.23
0079	0079	7.92	6.4	611.6	0.30	3.93	2.5	717.1	0.99	3.20	3.0	404.5	5.96	6.77	3.9	420.3	7.90
0002	0002	1.40	2.1	327.4	0.40	1.43	1.0	181.0	1.46	1.61	1.5	213.9	3.80	1.35	1.7	242.5	5.05
0010	0010	1.50	13.6	357.4	1.10	1.26	2.4	285.0	3.53	1.35	20.2	141.0	5.07	1.19	12.5	386.2	8.06
0013	0013	3.04	70.3	419.6	0.46	1.16	5.3	423.2	1.98	1.42	10.0	434.7	3.89	1.34	36.6	442.1	4.31
0032	0032	2.44	64.7	441.9	0.56	0.64	2.4	466.7	0.81	0.64	2.7	432.4	1.81	0.71	3.9	474.0	3.80
0058	0058	1.36	16.5	379.2	1.02	1.64	10.5	271.3	3.36	1.42	2.5	300.3	7.14	1.30	2.4	353.4	13.16
0119	0121	2.26	16.5	343.8	0.80	1.35	3.2	230.2	1.35	1.87	2.1	295.0	6.60	1.89	3.5	327.6	8.91
0060	0060	1.46	3.7	487.5	0.82	1.80	4.4	320.4	1.58	2.06	4.6	331.5	4.55	1.72	4.1	383.7	7.60
0094	0094	1.63	15.9	248.6	0.42	1.00	7.8	249.6	0.74	1.38	4.5	241.8	5.47	1.25	3.5	269.0	8.77
0114	0114	1.88	18.5	475.0	0.58	0.33	3.7	452.9	1.46	1.19	6.1	394.9	2.68	1.34	21.1	428.5	3.55
0114	0120R	2.50	47.5	465.2	0.52	1.21	8.8	459.3	1.52	1.42	10.7	358.7	2.33	1.77	30.6	395.2	3.12
0121	0124	2.74	59.8	363.0	0.26	2.37	34.1	313.6	0.95	1.78	7.4	265.2	3.38	1.64	6.1	287.6	5.08
0121	0130R	2.80	65.0	292.3	0.24	2.42	30.8	292.1	0.89	2.02	13.5	286.2	3.13	1.32	14.3	281.0	4.31
0001	0001	3.68	70.2	414.3	0.32	2.46	35.0	391.2	1.35	2.09	21.4	412.3	2.14	2.23	20.0	508.1	4.46
0046	0046	4.96	31.8	255.3	1.12	1.92	15.1	267.6	2.55	1.62	10.9	299.8	4.55	1.41	9.6	357.4	7.01
0097	0097	3.92	16.5	269.9	0.60	1.86	4.9	221.9	1.65	1.49	12.6	232.8	2.72	1.29	11.8	269.6	4.80
0136	0142	2.28	22.5	219.8	0.32	1.47	6.9	266.4	0.98	1.70	23.5	297.8	1.66	1.52	23.6	343.1	3.36
0037	0037	8.00	28.2	281.4	0.42	2.30	7.9	217.5	1.52	2.31	12.9	242.0	3.08	2.09	11.7	295.5	5.49
0050	0050	5.12	27.6	234.1	0.46	2.01	23.2	194.4	1.88	1.95	29.6	229.5	3.36	1.91	31.6	295.5	5.52
0100	0100	2.22	11.0	291.4	0.84	2.22	6.5	297.1	4.08	2.22	31.5	244.6	2.86	1.83	22.9	279.5	3.83
0069	0069	5.84	136.1	235.4	0.26	2.38	45.5	301.8	1.12	1.88	5.4	348.6	4.69	1.81	5.6	414.3	7.33
0093	0093	3.80	86.9	360.1	0.40	2.09	19.0	363.4	1.12	1.86	28.1	388.8	1.64	1.42	29.9	434.4	2.08
0078	0078	11.24	141.9	294.0	0.24	3.53	42.9	268.3	1.20	2.22	7.5	339.1	4.13	2.26	11.1	364.7	7.62

CAR#	RUN#	----STEADY STATE-15 MPH---- HC	CO	CO2	NOX	----STEADY STATE-30 MPH---- HC	CO	CO2	NOX	----STEADY STATE-45 MPH---- HC	CO	CO2	NOX	----STEADY STATE-60 MPH---- HC	CO	CO2	NOX
0098	0098	4.72	72.4	241.5	0.24	1.85	13.7	275.9	1.03	1.49	4.6	253.7	2.47	1.33	7.1	284.7	4.65
0156	0163	3.86	33.6	366.1	1.00	2.49	12.4	351.4	2.06	1.74	17.4	297.4	2.00	1.89	23.8	358.6	2.97
0011	0011	7.92	132.3	266.5	0.32	4.58	52.8	291.8	1.14	5.34	50.9	340.6	2.20	6.55	70.7	389.0	3.09
0016	0016	20.96	203.3	162.4	0.12	4.98	113.7	129.2	0.15	2.94	57.6	208.0	1.49	27.13	41.6	289.1	3.63
0129	0134	2.16	8.2	201.3	2.14	1.69	15.7	205.2	2.57	1.61	16.6	251.8	3.87	0.80	8.3	143.9	2.64
0144	0150	10.60	88.0	200.1	0.26	9.78	38.8	285.3	2.58	7.36	11.2	366.2	5.09	10.89	16.7	419.3	6.93
0170	0180	2.44	47.7	376.3	0.36	1.75	2.6	252.6	0.58	2.23	35.3	333.3	1.81	2.34	51.6	351.8	2.70
0009	0009	5.60	20.3	233.7	0.74	5.12	8.5	203.1	2.56	1.92	6.7	340.2	5.00	1.63	8.3	405.6	6.73
0044	0044	5.46	122.9	265.9	0.24	4.04	66.6	330.1	1.28	2.95	31.5	411.1	3.41	3.04	38.8	466.7	4.66
0146	0152	7.72	153.2	249.6	0.24	3.23	63.6	318.6	2.18	2.98	77.3	302.7	2.96	2.29	59.0	405.2	7.56
0038	0038	2.82	85.4	519.4	0.52	1.18	5.6	436.3	1.39	1.21	4.5	448.5	3.54	0.94	4.7	497.9	5.89
0155	0162	3.14	95.7	357.1	0.38	0.96	3.0	395.2	0.91	1.28	2.4	299.9	3.36	1.31	6.2	330.6	5.80
0155	0172R	3.02	95.6	330.1	0.24	0.92	2.6	352.2	0.74	1.60	2.8	289.5	3.79	1.61	6.9	381.2	7.81
0034	0034	2.44	22.3	492.2	0.20	1.96	2.1	361.9	2.80	2.46	6.1	383.3	6.61	2.47	10.1	450.5	9.61
0165	0173	2.38	18.0	289.3	0.40	1.40	3.3	248.2	1.66	2.08	4.0	342.8	5.47	1.91	6.0	386.5	8.01
0165	0178R	4.48	16.4	299.1	0.48	2.42	3.4	269.7	1.87	2.19	4.5	366.0	5.54	1.78	5.6	401.8	8.34
0061	0061	3.14	108.4	237.8	0.36	2.64	41.4	269.4	1.97	2.38	29.8	299.4	4.93	2.37	28.2	339.7	7.07
0166	0174	6.40	8.6	490.1	0.38	3.63	22.8	363.8	1.03	2.47	26.5	306.0	2.90	2.87	36.5	331.9	3.59
0166	0179R	3.32	5.4	426.7	0.18	2.78	18.3	368.7	0.83	4.36	64.7	315.5	2.36	3.76	49.7	385.9	5.44
0168	0176	3.38	134.7	412.4	0.32	1.52	36.6	475.2	0.75	1.17	37.0	347.9	0.88	0.87	24.2	374.8	1.49
0112	0112	5.10	51.7	342.4	0.34	4.21	126.8	251.5	0.38	4.52	165.5	328.2	0.72	4.23	160.1	375.6	1.47
0091	0091	2.24	18.2	211.7	0.52	1.67	7.9	201.1	1.32	1.40	9.8	224.8	2.02	1.04	9.3	264.6	2.59
0160	0167	1.44	11.8	145.7	2.20	0.94	1.7	137.1	3.94	1.08	1.5	262.5	5.54	0.77	1.9	283.8	6.02
0017	0017	3.98	141.5	823.1	5.66	1.52	23.7	345.6	1.10	1.78	49.4	345.6	3.04	1.58	32.9	413.8	1.80
0030	0030	2.68	79.7	456.5	0.40	1.46	33.5	375.4	0.78	1.22	22.5	395.9	1.64	1.22	16.8	435.8	3.30
0109	0109	1.34	12.4	479.7	0.76	0.84	7.6	370.3	1.11	0.95	12.8	357.8	1.84	0.91	7.5	449.4	3.76
0053	0053	3.04	118.7	362.1	0.34	1.11	12.7	355.6	1.01	0.96	4.9	364.3	5.12	0.93	9.0	435.6	10.30
0080	0080	5.54	194.7	408.5	0.30	3.05	68.6	277.9	0.53	2.77	36.6	354.8	3.69	2.74	32.9	378.9	5.82
0019	0019	13.28	145.4	342.5	0.20	3.90	93.8	283.2	0.37	3.45	62.4	331.4	1.52	2.86	45.0	405.9	4.18
0022	0022	3.48	56.6	323.3	0.20	1.75	8.8	308.6	1.35	1.60	8.8	325.5	3.26	1.99	27.2	350.4	5.70
0099	0099	9.80	118.1	279.4	0.14	4.05	72.9	256.4	0.11	2.79	46.1	313.6	0.37	2.48	38.1	372.8	1.08
0161	0168	11.30	155.1	375.6	0.24	4.37	73.4	288.1	0.44	4.02	51.4	374.6	2.68	3.10	41.5	447.4	5.78
0137	0143	9.54	133.4	330.7	0.30	3.15	50.9	326.2	0.99	4.04	71.2	349.9	1.67	2.82	35.5	433.1	5.88
0138	0144	20.18	202.5	212.4	0.10	5.54	67.2	310.8	1.33	4.64	51.0	406.9	3.74	4.19	41.8	452.1	6.95
0151	0157	4.64	71.9	245.9	0.32	3.35	22.1	289.9	2.20	3.53	26.0	382.8	5.64	3.93	32.2	444.4	8.69
0153	0160	2.10	41.9	227.8	0.32	1.42	20.9	333.6	0.90	1.16	22.0	353.0	1.22	1.18	15.8	394.7	2.84
0043	0043	1.44	16.4	426.1	0.44	1.93	4.3	341.2	3.35	1.63	5.4	378.0	7.30	1.60	10.4	419.7	10.19
0035	0035	3.08	91.9	453.8	0.68	1.83	32.9	367.7	1.64	1.08	3.0	210.1	6.74	1.02	8.7	465.7	8.61
0012	0012	13.88	129.3	661.3	7.94	2.87	37.9	334.1	1.61	2.09	7.2	376.4	4.18	1.54	10.9	348.5	6.27
0025	0025	7.80	98.8	355.6	0.34	3.22	34.3	287.9	1.23	2.90	27.5	354.0	4.19	2.72	23.4	441.5	8.63
0122	0126	4.12	73.7	222.2	0.24	3.04	53.7	253.8	1.58	2.30	46.6	259.5	2.36	1.90	39.9	286.7	3.88
0124	0128	5.92	90.4	232.9	0.14	5.27	91.8	276.2	0.37	1.98	51.0	333.4	4.38	1.50	25.8	327.9	4.44
0134	0139	2.56	22.8	135.7	0.50	2.18	37.9	229.6	2.20	2.28	42.9	275.6	3.55	1.68	26.7	349.2	2.10
0096	0096	3.10	38.3	321.0	0.50	1.24	5.5	260.3	1.00	1.70	19.9	282.7	2.64	1.60	28.7	293.9	3.58
0118	0118	8.90	124.0	286.5	0.14	4.09	70.5	280.1	0.13	3.67	74.6	277.6	0.27	4.09	89.3	341.1	0.49
0149	0155	3.86	60.9	426.7	0.42	1.80	11.0	400.8	1.71	1.12	3.8	357.1	4.14	0.95	5.0	425.3	7.55
0159	0165	3.28	81.8	515.2	0.58	2.04	26.9	392.1	2.24	0.76	4.7	355.2	3.18	0.78	3.3	366.5	6.78
0005	0005	3.40	85.3	445.6	0.38	2.32	22.6	330.5	1.64	2.02	25.5	350.7	3.22	1.92	11.3	421.5	7.51
0041	0041	6.40	31.3	445.4	0.30	2.10	21.0	413.6	0.80	1.12	4.9	405.6	1.66	1.00	6.5	470.1	4.04
0108	0108	7.72	63.4	391.6	0.42	1.55	21.4	329.5	0.85	1.82	9.7	294.7	3.42	1.59	9.8	308.7	4.90

		----STEADY STATE-15 MPH----				----STEADY STATE-30 MPH----				----STEADY STATE-45 MPH----				----STEADY STATE-60 MPH----			
CAR#	RUN#	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX
0049	0049	1.66	3.2	402.8	0.74	1.59	4.8	368.3	2.63	1.94	6.5	377.9	6.37	1.91	4.4	437.3	11.94
0051	0051	1.33	4.1	538.4	0.40	1.05	6.0	424.4	0.70	2.00	11.9	378.1	3.30	1.49	17.9	441.2	5.56
0090	0090	3.62	63.2	438.5	0.52	2.30	14.0	373.3	2.17	2.14	4.6	397.6	5.74	1.64	3.0	448.7	7.66
0125	0129	4.80	172.6	255.3	0.42	3.14	57.6	279.5	1.31	1.74	13.7	290.7	4.74	1.40	7.7	301.9	6.80
0142	0148	7.46	102.3	282.2	0.42	2.70	14.8	260.1	1.86	1.14	3.0	213.5	2.79	1.30	8.3	306.6	5.59
0023	0023	7.76	136.7	292.9	0.14	4.24	93.2	229.0	0.24	2.64	30.3	311.2	2.24	2.65	182.8	322.1	3.58
0132	0137	3.34	36.7	311.9	0.54	2.10	14.1	299.1	1.59	1.39	2.7	264.6	3.18	1.56	9.8	303.5	1.40
0126	0131	4.58	77.7	420.4	1.76	1.77	25.4	204.3	1.75	2.20	17.9	309.8	5.07	1.69	27.2	353.7	6.63
0125	0140R	4.92	133.8	213.8	0.20	2.40	40.6	277.1	1.92	1.80	17.5	369.7	5.84	1.91	32.8	371.3	6.02
0143	0149	2.42	66.2	133.2	0.24	2.35	67.8	214.3	1.25	1.84	62.1	196.1	1.34	1.89	70.1	143.5	2.14
0157	0164	1.44	13.4	459.5	0.40	0.90	1.5	405.5	0.98	1.13	2.0	290.9	3.42	1.04	2.9	326.6	5.82
0167	0175	1.42	14.1	343.1	0.34	1.01	4.9	285.1	1.51	1.03	3.2	249.0	3.16	0.78	1.9	259.0	5.28
0074	0074	2.18	13.9	368.4	0.38	1.23	0.5	337.0	1.52	1.12	1.5	353.7	2.93	1.11	3.4	389.1	5.14
0149	0154	4.24	83.7	241.5	0.24	20.11	28.2	285.0	3.94	19.80	23.8	373.8	7.70	15.36	21.0	446.3	10.98
0148	0158R	6.14	85.4	223.2	0.14	23.82	15.5	283.6	4.70	22.94	19.0	364.7	8.03	15.82	22.1	432.6	10.80
0152	0159	1.96	35.2	218.4	0.30	1.84	3.6	321.5	4.83	1.82	7.2	342.1	5.35	1.98	7.7	435.3	10.40
0062	0062	2.26	28.4	243.5	0.24	1.41	7.7	293.2	1.06	1.43	13.0	326.0	2.18	1.09	9.8	390.0	4.11
0163	0170	3.04	34.1	180.1	0.90	1.27	1.7	201.3	3.34	1.90	14.5	306.3	5.74	1.75	17.5	305.2	6.68
0015	0015	3.36	78.8	307.4	0.26	1.77	34.3	204.1	0.45	1.42	19.5	193.1	1.48	1.49	18.4	189.5	2.65
0088	0088	1.16	24.5	309.2	0.42	0.73	2.6	220.6	1.26	0.68	3.3	194.8	2.12	0.59	4.4	226.7	3.96
0036	0036	1.54	3.8	311.2	0.42	0.68	5.4	236.8	0.95	0.87	11.9	222.3	1.65	0.64	6.7	263.5	0.31
0101	0101	7.46	16.7	209.8	0.46	3.78	10.2	210.9	1.02	1.22	9.7	174.5	1.63	0.80	11.9	217.7	2.83
0026	0026	2.50	89.1	229.9	0.22	1.35	41.2	194.4	0.50	1.41	32.2	202.1	1.58	1.13	29.5	232.0	2.84
0031	0031	2.64	51.1	235.0	0.28	1.28	29.2	185.1	0.66	1.04	18.0	177.9	1.90	0.95	22.7	208.1	3.32
0106	0106	1.94	55.2	131.0	0.40	1.34	34.4	150.9	1.46	1.05	36.8	137.2	2.10	0.84	26.9	149.3	3.11
0082	0082	4.80	93.4	163.7	0.32	1.76	41.0	165.6	0.73	1.38	35.3	134.1	0.99	0.93	10.5	216.8	3.74
0159	0166	3.56	79.3	171.0	0.26	1.16	24.9	177.7	0.79	1.04	25.0	130.7	1.04	0.51	6.5	166.4	2.44
0162	0169	9.92	53.6	123.6	0.76	3.38	24.4	81.7	0.36	15.58	2.4	100.1	1.56	18.55	7.0	115.0	2.49
0130	0135	2.70	30.9	41.4	0.08	1.71	30.2	52.1	0.30	1.56	41.4	94.9	0.79	1.39	35.4	130.9	1.73

		----STEADY STATE-15 MPH----				----STEADY STATE-30 MPH----				----STEADY STATE-45 MPH----				----STEADY STATE-60 MPH----			
CAR#	RUN#	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX
C119	0125	2.42	32.4	877.4	1.68	2.19	12.2	546.5	3.25	2.62	19.2	543.6	7.26	2.86	26.8	618.6	12.34
0079	0084	3.28	29.6	667.1	1.72	2.29	9.4	468.3	4.17	2.30	7.4	508.0	11.42	2.17	9.6	593.5	18.38
0110	0118	2.26	57.0	525.8	0.80	1.15	9.9	410.3	1.51	1.43	12.0	433.1	4.92	1.16	7.1	465.2	9.25
0158	0166	2.14	52.6	469.4	0.80	1.44	10.4	433.8	3.35	1.36	6.3	456.8	9.17	1.08	5.2	485.0	12.64
0111	0119	1.90	22.2	529.0	1.00	1.12	8.4	468.9	1.52	1.20	3.6	491.5	4.18	0.90	4.1	548.1	6.22
0034	0037	3.76	165.7	452.3	0.46	2.36	99.3	234.1	0.53	1.54	37.9	493.7	2.12	1.04	20.5	604.4	4.78
0133	0141	12.46	107.0	378.8	0.50	6.07	114.1	310.0	0.73	4.68	81.6	409.6	3.92	3.55	61.2	493.6	8.92
C122	0130	3.18	51.8	292.8	0.48	1.95	12.2	347.8	2.25	2.20	14.7	380.5	6.23	2.85	37.0	427.1	8.42
0156	0167	3.24	88.7	221.7	0.48	1.39	36.0	302.6	3.11	2.18	53.4	361.4	5.24	2.26	32.0	449.7	10.59
0048	0052	9.18	158.1	206.1	0.28	4.39	115.4	198.3	0.38	4.02	116.0	263.9	0.99	3.77	107.9	345.5	3.07
0055	0058	7.48	85.0	397.9	0.64	5.00	84.8	366.7	1.81	4.26	74.2	440.7	5.44	3.92	61.4	553.6	10.36
0152	0162	3.20	53.5	431.9	0.70	2.38	5.6	475.9	5.03	2.57	18.7	518.3	8.61	1.93	13.2	611.4	10.45
0152	0171R	3.04	45.1	441.1	0.82	2.92	5.4	467.1	5.21	2.43	16.3	503.4	8.85	1.89	12.2	588.3	14.56
0065	0070	6.62	106.0	203.9	0.32	4.13	38.3	294.7	2.52	5.61	74.8	333.7	2.96	6.01	82.5	381.9	5.34
0082	0103	1.20	24.5	909.4	4.66	1.12	35.5	543.2	1.79	0.73	22.2	586.4	6.04	0.89	10.3	685.3	14.36
0082	0111R	0.62	7.7	792.1	1.18	1.29	23.6	535.7	2.82	0.99	16.2	578.8	2.16	1.06	7.2	673.9	16.43
0097	0104	1.26	28.2	645.9	0.86	1.24	15.9	480.2	3.46	1.41	11.9	522.7	7.51	1.41	5.4	601.6	13.79
0012	0014	5.42	34.9	494.5	0.70	2.57	24.4	395.7	1.57	2.83	39.5	430.4	4.74	3.06	27.2	517.0	10.60
0004	0005	2.38	8.3	571.2	0.96	1.36	11.1	452.0	1.89	1.66	20.8	490.1	3.69	2.26	43.0	528.2	5.70
0018	0019	4.52	42.9	434.8	1.84	3.90	79.4	356.4	2.49	5.02	144.4	373.0	2.23	5.64	186.1	425.5	2.65
0052	0057	5.12	149.9	795.4	6.60	2.30	52.2	410.5	1.20	3.09	115.4	416.7	1.48	3.18	114.7	502.5	3.18
0052	0065R	5.64	171.9	431.9	0.70	2.37	55.8	420.1	1.43	3.08	115.7	429.7	1.78	3.07	111.6	511.6	3.76
0016	0012	1.42	19.5	473.8	0.78	1.24	7.7	297.7	1.58	1.66	5.1	347.2	6.22	1.01	2.4	414.4	12.77
0057	0060	2.80	62.8	475.1	0.80	1.66	7.2	417.5	4.43	2.43	32.0	450.6	6.88	1.93	19.5	536.3	3.39
0102	0105	0.48	7.1	378.2	0.88	0.77	2.5	229.6	3.14	0.93	5.5	283.2	5.62	1.04	12.2	315.8	6.05
0126	0134	2.14	46.4	508.9	0.66	0.76	2.5	502.9	1.60	0.52	11.4	514.1	3.32	0.13	2.5	612.7	5.11
0137	0146	2.10	37.6	469.3	0.74	1.39	16.0	392.8	3.24	1.27	11.9	453.3	7.84	0.77	3.3	537.8	13.87
0026	0029	1.62	36.3	475.4	0.40	1.62	8.3	359.2	4.43	1.40	8.3	427.0	9.00	1.50	3.4	494.1	14.29
0027	0030	0.84	25.1	394.2	0.80	1.20	4.8	264.8	2.84	1.34	9.7	319.0	6.40	1.14	3.1	366.9	8.58
0038	0039	0.74	12.5	810.2	0.86	1.63	6.2	383.1	3.58	2.38	16.2	472.8	9.38	2.44	27.3	517.7	11.41
0075	0091	1.26	11.1	567.1	0.84	2.24	7.3	350.7	3.73	2.43	10.8	422.0	8.38	2.30	13.0	473.4	12.14
0037	0035	9.26	207.9	295.7	0.70	3.83	121.3	247.5	0.57	2.33	35.3	387.2	5.64	2.39	44.1	434.6	7.60
0037	0042R	9.50	209.1	313.9	0.46	3.90	120.2	254.6	0.55	2.23	34.7	397.9	5.49	2.44	43.1	442.7	7.79
0070	0074	2.30	55.8	536.2	0.66	1.04	18.4	477.7	1.52	0.90	8.4	501.4	4.34	2.04	26.5	539.0	7.05
0095	0098	1.16	20.6	467.1	0.34	1.54	3.7	381.0	4.78	1.92	2.9	458.4	11.52	2.70	2.7	522.7	15.93
0064	0067	2.76	79.8	416.3	0.46	1.94	36.4	431.7	1.06	1.53	21.0	484.8	2.54	1.08	11.9	541.9	5.00
0089	0093	4.20	63.9	513.9	2.14	2.20	19.8	394.0	2.84	2.69	38.3	422.9	4.66	3.31	70.6	469.7	6.32
0090	0096	0.90	3.1	366.2	1.00	1.41	1.5	257.8	4.33	1.80	4.2	329.8	8.70	1.56	3.4	369.1	11.05
0050	0053	11.32	93.8	200.4	0.40	4.73	41.7	221.5	0.72	2.36	39.9	306.7	3.66	1.74	9.3	423.4	12.35
0130	0138	6.04	85.8	284.2	0.38	5.51	40.0	361.3	2.27	4.20	49.3	423.2	4.56	3.83	28.8	504.8	9.99
0138	0147	14.92	225.5	292.1	0.46	6.32	136.0	275.0	0.53	5.54	108.2	357.3	1.66	7.12	124.4	402.1	2.85
0084	0092	4.48	50.5	392.8	0.32	2.38	28.0	329.7	3.11	2.56	40.2	366.5	5.64	2.18	23.5	423.2	9.71
0084	0095R	3.94	46.0	367.4	0.84	2.34	31.6	314.6	2.63	2.43	39.9	350.4	5.06	2.17	27.4	414.1	9.11
0103	0110	13.78	107.2	357.2	0.66	12.50	63.9	315.3	1.99	16.68	40.9	376.2	5.02	19.46	34.6	468.0	8.70
0141	0148	20.92	185.2	230.4	0.44	5.92	127.5	196.4	0.42	2.98	46.2	257.8	2.50	2.50	38.8	287.1	3.48
0091	0100	6.39	106.5	342.9	0.72	4.55	63.7	389.3	2.23	4.72	64.5	445.9	5.50	3.76	48.4	473.2	7.68
0100	0108	4.54	63.1	296.0	0.76	3.39	22.0	395.3	4.45	3.26	22.2	439.9	7.51	3.72	32.6	506.7	3.23
0150	0159	3.34	89.5	309.3	0.58	1.93	45.4	191.3	0.63	2.01	40.8	227.9	1.86	1.67	26.8	266.1	3.21
0071	0076	4.56	96.1	260.5	0.84	2.22	24.3	334.1	3.17	1.70	4.0	402.4	2.32	1.20	6.4	447.4	11.64
0115	0120	6.10	113.3	233.1	0.58	2.43	53.9	240.3	1.86	2.68	59.3	288.4	2.71	3.58	82.4	346.4	3.88

CAR#	RUN#	----STEADY STATE-15 MPH---- HC	CO	CO2	NOX	----STEADY STATE-30 MPH---- HC	CO	CO2	NOX	----STEADY STATE-45 MPH---- HC	CO	CO2	NOX	----STEADY STATE-60 MPH---- HC	CO	CO2	NOX
0165	0175	8.10	125.4	263.6	0.48	4.79	45.0	380.0	2.30	4.10	30.1	440.2	5.78	4.32	38.2	501.7	11.29
0029	0028	8.02	130.7	254.5	0.36	1.90	193.5	377.9	8.49	1.76	16.8	421.8	13.74	27.90	2.1	529.5	19.86
0054	0059	5.96	97.6	304.5	0.66	2.27	16.0	354.7	6.16	1.96	14.8	426.1	11.72	1.65	6.6	522.5	15.60
0073	0078	2.14	40.3	588.4	0.84	1.46	20.4	408.0	1.11	0.86	9.9	502.4	2.69	1.04	9.0	516.3	4.29
0148	0157	3.60	75.3	237.4	0.42	2.53	28.7	280.4	1.70	1.92	6.4	358.0	5.78	1.56	2.9	268.5	3.55
0096	0101	5.22	70.6	406.0	0.54	3.48	45.2	348.5	1.95	3.03	35.0	407.6	3.92	3.14	33.4	500.8	7.67
0143	0158	2.02	10.2	308.6	1.68	1.61	3.6	295.8	2.40	1.69	5.0	344.4	5.40	2.06	9.0	413.8	2.56
0008	0003	2.20	23.8	498.1	1.26	1.33	21.0	385.9	3.34	1.70	16.3	428.2	6.82	1.60	15.0	490.6	11.38
0081	0085	3.88	39.9	326.7	1.60	2.59	17.2	398.8	5.96	2.48	17.7	428.6	8.30	2.42	18.0	517.4	11.83
0021	0022	2.98	44.2	256.8	0.80	1.66	3.4	346.8	5.27	1.51	5.0	420.2	9.94	1.22	5.8	509.7	13.07
0162	0170	7.92	97.5	234.9	0.44	2.37	15.3	331.4	2.21	2.60	4.6	413.3	6.20	2.94	4.8	501.3	9.97
0171	0131	1.88	2.0	285.1	0.84	1.98	17.3	336.0	3.43	1.84	14.8	373.5	6.94	1.77	8.5	438.2	12.20
0134	0139	5.34	137.2	310.4	0.38	4.11	109.5	332.8	0.54	3.89	91.9	399.5	1.13	3.23	48.5	486.3	4.48
0005	0004	3.72	136.1	389.1	0.40	1.69	11.1	441.5	2.10	1.30	6.0	489.2	7.11	1.56	10.0	562.2	11.40
0135	0142	1.34	7.1	528.9	1.02	1.30	16.4	456.1	4.34	2.08	7.6	502.5	9.94	3.21	24.7	566.4	3.50
0020	0023	6.54	114.7	444.2	0.76	3.31	40.7	437.5	3.65	4.24	62.1	483.2	5.62	2.40	34.3	599.3	11.34
0080	0086	5.50	93.1	334.7	1.48	3.24	34.5	382.6	4.14	2.91	44.4	444.8	7.33	3.47	68.9	496.4	9.84
0076	0081	2.90	63.3	330.5	9.12	1.37	4.9	394.4	6.86	1.64	4.6	439.2	10.59	2.21	19.3	502.7	13.12
0166	0176	3.62	62.3	468.7	1.02	2.75	24.4	532.0	7.15	2.33	15.6	502.4	10.58	3.84	31.1	554.0	11.42
0010	0010	2.86	46.2	443.0	0.64	1.99	7.0	378.7	3.23	2.07	9.3	419.3	8.16	1.97	8.4	475.2	12.46
0063	0068	1.10	8.3	376.1	0.84	0.65	1.0	254.2	2.00	0.75	5.6	300.3	5.96	0.73	1.5	389.6	11.36
0106	0114	3.42	60.2	518.1	0.88	2.53	15.2	449.3	6.29	2.06	11.1	528.0	11.22	2.20	9.5	583.7	15.36
0114	0116	1.96	44.3	295.2	0.76	1.44	9.0	346.4	3.88	1.56	22.1	397.8	5.64	1.45	17.3	439.7	9.16
0121	0129	1.06	14.2	316.4	1.26	1.06	14.6	307.6	2.90	0.78	5.0	367.8	7.69	0.75	6.1	426.1	12.40
0042	0046	3.18	54.0	236.1	0.80	1.86	13.5	297.0	4.82	1.36	4.5	345.2	9.43	1.15	7.3	416.0	13.76
0074	0079	2.86	114.0	254.7	0.40	0.67	7.0	376.3	2.41	1.12	15.0	407.8	4.76	0.63	14.7	479.4	6.55
0049	0050	3.38	63.9	427.0	0.70	3.12	23.6	411.2	3.48	3.28	26.4	484.9	9.00	3.19	28.4	549.3	8.87
0022	0021	20.30	80.1	247.3	0.64	23.90	140.7	263.9	0.59	24.28	133.3	296.5	0.96	25.56	109.4	392.6	3.11
0170	0183	3.18	47.8	356.5	0.92	2.11	14.4	380.3	5.96	2.05	16.3	424.6	10.44	3.15	39.2	438.2	10.20
0006	0006	0.94	7.0	301.5	0.90	1.46	7.7	256.1	3.05	1.50	3.7	262.5	6.40	1.57	9.1	314.7	8.37
0144	0153	1.26	8.8	251.9	0.76	1.38	9.3	233.3	2.60	1.35	3.2	287.2	6.30	1.16	2.2	322.6	9.02
0149	0160	2.96	77.8	361.2	0.74	1.16	4.2	420.3	2.37	1.26	2.8	458.3	8.67	1.13	3.6	529.6	12.76
0151	0161	0.38	3.3	634.3	1.46	0.86	2.8	389.3	1.83	1.80	7.7	399.3	6.84	1.47	11.8	430.2	7.79
0157	0168	1.06	17.2	575.2	1.26	1.06	2.5	508.2	4.11	1.23	3.3	537.5	12.93	0.94	3.6	622.7	16.10
0014	0015	22.48	15.3	677.3	2.34	2.39	8.3	450.5	2.90	2.40	10.2	466.5	9.02	2.96	30.3	513.0	9.96
0129	0137	0.46	2.5	434.8	0.80	0.71	0.8	237.7	1.43	1.04	2.2	279.8	4.96	0.81	2.0	339.4	2.27
0140	0144	0.72	1.7	408.0	0.80	1.08	2.0	295.9	5.18	1.26	6.1	363.3	9.04	1.57	12.2	428.5	13.74
0078	0083	1.00	2.3	545.2	0.68	0.83	1.4	395.5	1.49	1.04	3.5	423.7	5.53	1.54	13.0	459.1	7.63
0117	0122	1.20	4.2	493.9	1.16	1.23	2.2	396.5	2.76	1.62	3.0	430.0	9.00	1.53	5.2	468.1	10.85
0083	0090	3.30	84.2	382.6	0.60	2.00	11.9	399.7	4.55	1.66	2.8	427.7	8.61	2.03	9.1	464.3	3.22
0125	0132	2.68	38.0	298.1	0.82	2.86	5.2	374.5	6.71	3.94	3.6	415.8	11.32	2.36	4.0	459.5	15.29
0118	0124	3.38	78.6	360.6	0.44	2.26	51.3	273.6	0.94	2.51	50.8	349.9	3.38	2.35	45.0	398.9	5.95
0159	0169	4.62	87.7	385.3	0.62	3.85	51.3	375.3	3.53	3.06	23.9	426.3	7.76	3.84	22.9	511.5	11.06
0159	0174R	4.00	82.4	353.6	0.66	3.58	45.1	366.2	3.62	2.88	19.6	437.0	9.12	2.85	16.5	513.3	12.33
0032	0033	1.64	20.9	420.3	0.70	1.52	4.8	287.9	2.69	1.62	8.8	338.6	5.44	1.88	17.1	407.8	7.99
0107	0113	11.08	162.8	316.1	0.56	3.60	83.3	230.1	0.43	3.69	44.8	316.8	2.38	3.77	50.2	356.3	3.95
0113	0121	3.60	114.3	290.1	0.76	2.72	15.1	347.2	4.79	2.72	7.8	410.9	8.88	2.85	10.6	466.5	10.98
0033	0038	4.10	132.3	270.8	0.36	2.79	17.8	382.1	6.93	2.68	13.2	392.5	7.62	2.43	8.2	471.4	12.21
0044	0043	4.98	26.4	297.5	0.60	2.65	48.0	216.1	0.67	2.42	61.3	260.9	0.92	2.97	66.6	332.8	2.00
0053	0055	2.76	43.1	311.4	1.06	2.43	13.9	280.5	3.02	2.32	19.5	302.8	4.54	2.85	13.9	398.6	5.78

		----STEADY STATE-15 MPH----				----STEADY STATE-30 MPH----				----STEADY STATE-45 MPH----				----STEADY STATE-60 MPH----			
CAR#	RUN#	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX	HC	CO	CO2	NOX
0109	0117	3.16	109.4	210.7	0.42	3.28	75.3	234.7	0.59	2.89	60.1	268.5	1.61	2.77	56.1	348.0	13.00
0066	0072	3.20	39.2	491.6	1.24	2.90	11.9	466.2	5.13	3.08	15.4	490.3	8.09	2.98	18.2	567.9	9.99
0072	0077	9.96	46.3	483.2	2.58	6.06	18.7	410.0	5.25	11.88	15.3	450.0	8.38	25.64	4.6	538.6	16.46
0085	0038	10.52	3.4	294.8	2.75	2.26	2.7	254.4	3.15	1.10	5.1	337.4	6.80	1.23	6.9	390.8	10.30
0108	0115	19.98	41.5	352.0	2.12	19.05	25.6	401.0	4.44	21.52	16.1	468.0	8.55	23.45	11.7	540.6	13.13
0127	0135	5.26	66.1	556.4	2.58	1.99	25.4	247.7	0.73	2.22	46.1	278.5	1.13	2.45	49.8	330.6	2.06
0160	0177	3.64	59.4	263.1	0.50	3.09	23.1	325.4	2.45	3.22	20.1	393.1	5.28	3.52	18.0	478.0	8.98
0013	0013	1.16	8.3	296.7	1.24	1.07	4.8	350.4	2.30	0.35	4.1	480.4	3.98	0.27	2.7	542.0	4.67
0120	0127	2.22	16.5	175.2	1.06	1.42	16.0	391.5	2.90	1.85	24.1	258.5	2.62	1.81	25.4	304.7	3.78
0154	0164	3.24	5.0	240.6	4.64	1.62	5.4	230.4	6.72	1.54	6.7	290.9	8.92	1.49	4.2	360.2	13.98
0035	0036	6.06	101.9	299.1	0.52	3.50	65.6	245.8	0.74	3.94	57.1	337.6	2.24	3.79	48.6	423.8	4.82
0061	0064	4.36	93.6	344.6	0.32	2.76	25.1	338.1	3.22	3.28	26.0	385.7	6.22	3.02	25.1	416.8	8.65
0124	0131	2.64	56.3	427.2	0.66	0.95	6.1	432.2	1.94	1.32	4.3	459.5	7.17	1.57	12.0	528.4	11.15
0002	0001	2.78	27.6	308.1	0.42	1.36	0.6	354.0	2.61	1.35	1.8	405.2	8.07	1.95	1.7	432.6	12.81
0045	0048	1.76	43.0	589.7	0.30	1.08	2.4	468.1	2.30	1.46	4.1	493.0	7.14	1.39	6.5	567.4	10.46
0128	0136	1.90	3.1	265.5	1.84	1.45	5.7	293.5	2.92	1.22	6.4	355.8	4.35	1.84	8.5	424.2	5.47
0068	0071	4.54	84.0	244.1	0.54	3.79	33.4	349.2	1.50	4.01	42.5	397.9	2.60	3.67	62.1	526.2	3.39
0058	0062	1.28	13.0	212.1	0.70	1.31	13.6	211.4	1.10	0.98	12.7	284.8	1.94	0.56	10.1	372.3	3.75
0025	0026	0.68	5.6	581.3	0.90	1.09	3.5	410.2	2.31	1.39	2.8	424.9	8.30	0.91	3.8	496.3	9.72
0131	0140	1.34	6.6	565.7	0.90	1.69	2.1	414.1	2.95	2.13	6.6	463.8	7.92	2.09	4.2	529.8	12.93
0131	0149R	1.78	13.1	638.7	2.18	1.81	4.0	415.0	2.77	2.26	12.7	461.3	7.04	2.31	7.2	546.1	12.42
0003	0002	1.38	15.2	545.1	0.80	1.31	1.3	403.4	2.59	2.02	10.1	417.1	6.97	1.74	6.5	487.0	9.69
0088	0094	5.20	95.7	692.6	2.14	1.77	16.9	511.8	1.29	1.54	23.0	536.1	3.28	1.54	15.1	599.6	7.03
0067	0073	7.36	64.6	542.5	0.84	3.94	52.5	513.4	1.99	2.63	35.5	456.0	4.60	2.52	20.6	576.7	11.73
0147	0156	3.92	3.9	540.3	0.82	2.03	3.8	437.8	2.37	1.52	9.4	473.8	6.13	2.57	7.0	553.2	11.17
0060	0066	3.72	106.1	307.7	0.40	2.52	57.2	339.3	0.67	2.62	73.7	362.1	1.15	2.76	62.7	410.2	3.35
0069	0075	6.64	94.8	278.9	0.44	2.35	28.0	357.6	1.56	1.32	3.0	418.7	6.38	1.56	7.0	168.1	2.70
0153	0163	7.06	87.0	254.6	0.52	3.55	18.7	407.6	4.19	3.73	25.2	463.4	7.23	4.35	48.8	523.7	8.92
0167	0178	9.00	94.2	417.3	0.62	5.35	81.4	358.9	1.27	4.10	33.7	476.3	5.75	3.42	17.6	560.8	11.16
0169	0180	4.12	17.7	416.7	0.90	1.22	3.5	477.1	2.39	1.26	6.2	512.7	5.62	1.34	11.5	599.4	7.31
0051	0051	1.00	6.6	353.9	1.14	0.32	1.4	325.4	3.21	1.14	9.4	383.5	5.65	0.92	5.1	422.6	11.26
0051	0056R	0.70	3.1	343.8	1.40	0.82	2.1	323.8	3.42	1.10	10.9	353.9	5.74	0.81	4.8	418.4	11.60
0099	0107	1.80	68.9	275.0	0.66	0.93	13.4	341.3	2.47	0.79	9.9	393.3	5.29	0.69	8.1	440.2	8.44
0136	0145	4.08	72.2	382.2	0.68	7.72	16.1	393.6	5.32	2.92	2.5	469.8	12.35	2.01	18.9	535.2	13.57
0007	0007	2.66	74.4	383.7	0.54	1.87	21.7	332.4	2.79	1.64	9.8	419.5	8.19	1.50	8.7	455.9	12.46
0036	0034	1.52	6.9	293.3	1.24	1.52	6.9	273.4	5.53	1.58	4.6	335.7	8.54	1.77	6.6	395.8	12.42
0023	0018	3.68	69.4	274.5	0.58	3.47	6.2	311.4	3.04	1.68	10.6	349.5	4.70	2.04	2.7	391.6	8.00
0039	0040	2.02	97.2	239.9	0.44	4.03	48.6	311.9	2.34	3.94	46.5	274.8	5.43	5.25	114.8	414.0	4.05
0059	0063	0.96	2.8	298.1	1.12	1.31	4.5	297.8	3.02	1.22	7.6	358.7	6.22	1.01	9.8	384.0	7.50
0092	0097	2.96	29.0	360.8	3.70	2.37	32.9	361.7	5.69	2.38	36.5	430.7	9.07	2.04	23.5	517.1	15.06
0015	0025	2.78	30.8	331.2	0.60	1.99	3.5	354.3	4.37	1.03	8.4	411.5	8.56	2.42	17.4	476.3	11.19
0031	0032	2.78	19.6	383.1	1.26	2.06	4.2	390.7	9.18	2.12	8.8	471.7	14.95	2.20	14.7	540.6	17.28
0142	0151	2.96	40.4	296.5	1.08	1.92	5.5	348.3	6.82	2.21	26.9	386.2	8.44	2.27	39.5	432.9	9.65
0024	0024	1.32	5.6	664.9	1.30	1.41	3.5	472.2	4.34	1.83	4.6	527.2	11.62	2.13	13.9	628.2	18.22
0043	0045	1.74	22.3	462.3	0.94	1.11	6.9	390.8	2.15	1.50	22.3	418.3	3.25	1.63	19.9	491.7	9.43
0112	0126	3.82	65.5	453.1	1.76	2.44	21.8	406.6	3.44	1.97	7.3	448.3	2.39	1.74	4.2	527.2	12.09
0105	0112	3.18	18.4	432.3	0.82	1.14	2.2	446.3	3.22	1.50	7.5	488.8	7.31	1.55	9.9	571.4	10.74
0040	0041	4.20	86.1	422.5	0.42	2.02	23.4	419.4	1.38	2.75	58.5	422.1	3.16	3.19	67.9	489.9	6.09
0030	0031	15.82	47.6	502.7	0.88	4.84	35.7	337.3	1.32	4.64	109.5	350.9	2.00	6.03	165.7	376.0	2.31
0030	0047R	13.48	58.5	560.2	1.26	4.11	37.6	353.2	1.29	4.72	178.6	367.9	2.24	6.07	163.1	408.1	3.37

CAR#	RUN#	----STEADY STATE-15 MPH---- HC	CO	CO2	NOX	----STEADY STATE-30 MPH---- HC	CO	CO2	NOX	----STEADY STATE-45 MPH---- HC	CO	CO2	NOX	----STEADY STATE-60 MPH---- HC	CO	CO2	NOX
0087	0089	3.76	43.5	331.9	0.68	2.56	10.5	384.1	3.51	2.30	7.4	421.0	8.00	2.43	6.6	498.1	11.97
0062	0069	10.10	43.2	353.8	0.66	2.48	13.9	382.3	3.36	2.58	42.8	415.9	7.14	2.70	60.2	460.9	7.81
0132	0143	7.42	107.4	384.3	0.42	2.47	15.6	421.8	4.90	3.70	85.1	428.4	5.03	6.72	51.3	516.1	6.42
0163	0173	5.46	83.6	347.2	0.56	2.35	26.7	372.5	3.26	2.46	22.5	447.9	7.99	2.52	27.9	506.0	11.75
0011	0011	5.78	44.7	439.2	0.50	2.91	10.4	399.1	3.36	3.78	36.3	439.2	6.16	3.10	24.7	539.9	12.93
0094	0102	1.06	3.1	338.0	1.70	0.65	0.4	289.1	0.95	1.06	3.2	313.0	3.55	0.97	2.2	388.6	2.06
0145	0152	2.46	37.6	255.4	0.46	1.50	1.8	272.2	4.11	1.63	1.7	339.3	8.12	1.34	2.1	385.5	11.34
0101	0109	2.50	59.0	329.3	0.68	1.95	4.9	362.0	3.76	2.39	4.7	415.5	8.72	2.37	11.0	469.0	11.44
0123	0128	2.92	29.0	308.8	1.02	2.38	52.8	275.5	1.63	2.38	29.3	380.9	6.00	1.43	3.3	418.5	11.64
0009	0009	3.62	98.0	204.6	0.36	2.11	49.0	263.9	1.64	2.68	97.3	304.0	2.29	2.40	98.1	383.0	4.60
0155	0165	3.44	19.9	257.8	1.36	2.31	4.3	220.0	3.03	2.04	4.2	283.4	6.60	1.84	2.5	354.0	9.44
0041	0044	4.46	110.5	460.8	0.62	4.10	93.1	313.8	0.60	4.62	99.7	370.8	1.74	3.97	81.2	466.3	4.63
0161	0172	4.88	30.7	293.3	1.32	3.62	24.4	283.8	3.09	3.37	6.9	367.8	7.81	3.88	8.3	475.7	14.22
0028	0027	4.08	36.5	281.6	0.66	2.64	32.2	258.0	1.78	2.74	44.9	310.6	3.89	2.37	40.1	393.2	7.61
0046	0049	0.64	11.6	350.8	0.70	0.35	1.7	262.7	2.51	0.55	4.3	287.4	5.61	0.71	11.7	346.6	8.84
0047	0054	1.64	25.1	345.8	1.56	0.82	11.1	184.7	1.09	0.82	8.3	253.6	3.71	1.05	17.3	287.8	5.18
0139	0150	1.24	25.1	292.9	0.72	0.68	4.5	168.5	1.29	0.73	8.3	227.4	2.68	0.74	7.7	270.0	5.34
0139	0154R	0.78	13.6	318.3	0.60	0.68	7.1	241.7	1.28	0.67	8.6	240.8	2.94	0.75	9.1	283.7	4.98
0077	0032	0.78	11.5	282.2	0.74	0.46	3.5	226.3	1.40	0.57	10.7	210.9	1.98	0.65	10.5	257.7	1.59
0056	0061	3.22	86.4	273.5	0.60	1.29	34.8	151.4	0.44	1.33	23.2	220.9	2.86	1.44	24.1	268.9	5.28
0116	0123	3.00	25.8	342.6	1.80	1.64	15.9	304.0	3.19	1.83	19.9	290.7	5.94	2.05	45.2	362.1	9.52
0093	0099	1.62	30.4	342.9	0.72	1.18	13.4	232.5	1.74	0.97	12.7	293.9	3.52	1.47	46.8	328.7	5.44
0098	0106	3.86	74.8	177.3	0.60	1.91	24.3	212.3	1.44	2.52	63.3	189.8	2.49	1.90	9.3	277.3	6.99
0146	0155	4.08	86.2	165.9	0.48	1.95	41.7	173.0	0.89	1.60	37.5	211.9	1.58	1.69	26.7	256.4	3.53
0168	0192	3.16	78.8	153.3	0.46	1.33	39.0	165.6	0.70	1.04	30.7	201.1	1.62	1.43	42.4	240.4	2.05
0172	0184	8.26	9.3	245.9	2.80	5.79	8.4	204.3	3.79	0.76	10.1	239.1	7.08	1.37	17.7	274.7	9.04
0086	0087	1.20	12.6	310.0	2.24	1.18	5.0	270.4	4.90	1.48	1.0	286.6	10.86	1.40	1.4	320.1	3.84
0164	0179	1.72	11.7	230.6	1.02	0.62	12.8	138.1	1.51	0.76	2.8	176.9	4.07	1.52	1.4	192.9	5.33
0019	0020	7.12	41.4	170.5	0.66	4.81	29.7	123.6	0.83	2.99	25.3	175.5	2.02	1.79	10.7	233.7	4.96

4.5 EVAPORATIVE EMISSION TEST DATA FOR LOS ANGELES AND DENVER

Data for the diurnal loss and hot soak loss SHED evaporative emission tests are included in this section. Test fuel inspection information for each test is also included. Reid vapor pressure (RVP) in pounds per square inch was obtained by the ASTM D323 test method. The ASTM D86 test method was used to obtain the fuel distillation properties.

The weighted average hydrogen-carbon (H/C) atom ratio of the initial boiling point to 130°F vapor fraction of the test fuel was determined by use of a chromatographic technique*. A squalene column was used to produce thirty-three chromatographic peaks. Using data from a paper by Maynard and Sanders, and a known sample of natural gas, the eluted peaks were identified and the mole percents determined. The H/C ratios were calculated from the respective chemical compositions.

The following formula was used to compute the weighted average H/C ratio for each vapor sample.

$$\text{Fuel H/C ratio} = \frac{\sum_{i=1}^{33} (X_i \cdot H/C_i)}{100}$$

where X_i represents the mole percent of each individual fuel component and H/C_i represents the H/C ratio of each individual component.

The following is a description of the headings used in this section.

HEADING	DESCRIPTION
DIURNAL	Diurnal breathing losses are fuel vapors emitted as a result of an increase in fuel tank temperature in a specified time.
HOT SOAK	Hot soak losses are fuel vapor emitted during a specified period beginning immediately after the engine is turned off and sealed in the SHED enclosure.

*J.B. Maynard and W. N. Sanders, "Determination of the Detailed HC Composition and Potential Atmospheric Reactivity of Full-Range Motor Gasolines." Shell Oil Company, Journal of the Air Pollution Control Association, July 1969.

TIME	The time in minutes required to heat the tank fuel 24 ±1°F at a constant rate during the period of 60 ±10 minutes.
ENC TEMP (DIURNAL)	The enclosure interior air temperature as °F, measured by a thermocouple installed 6 inches below the geometric center of the ceiling. The interior temperature is held between 68°F and 86°F.
INT TEMP	The internal tank fuel temperature measured as °F by a thermocouple installed near the geometric center of the tank fuel liquid. This temperature is recorded as the final maximum temperature of the tank fuel.
EXT TEMP	The external fuel tank temperature measured as °F by a thermocouple installed on the external surface of the fuel tank.
HC/GMS	Calculated weight of emissions as grams. The emissions are calculated from the net hydrocarbon concentration of the enclosure in ppm carbon.
ENCL TEMP (HOT SOAK)	Same as ENCL TEMP (DIURNAL) above except the interior temperature should be held between 76°F and 90°F.

		DIURNAL				HOT SOAK															
CAR#	RUN#	TIME	ENCL TEMP	INT TEMP	EXT[1] TEMP	HC/GMS	TIME	ENCL TEMP	INT TEMP	EXT[1] TEMP	HC/GMS	RVP	H/C	IBP	5%	10%	15%	20%	30%	40%	50%	90%	FBP
0170	0446	55	74.0	84.0	72.0	19.10	60	82.0	94.0	86.0	7.76	8.6	2.39	95	118	131	144	158	184	207	227	334	420
0156	0427	60	72.0	84.0	81.0	1.60	60	84.0	87.0	84.0	7.17	8.8	2.38	96	114	131	144	158	184	208	228	340	410
0046	0189	55	74.0	84.0		28.47	60	83.0	89.0		18.84	11.2	2.40	84	100	115	128	140	170	196	216	330	408
0046	0206R	55	77.0	84.0		27.98	60	84.0	85.0		10.29	10.1	2.41	85	101	117	130	144	175	202	224	332	406
0112	0340	60	73.0	84.0		14.31	60	80.0	86.0		12.03	8.9	2.38	97	114	126	137	148	172	197	218	330	410
0081	0271	60	73.0	84.0		44.78	60	79.0	87.0		29.20	10.8	2.41	87	99	115	129	144	175	201	222	329	405
0111	0353	60	78.0	84.0		16.22	60	86.0	90.0		2.93	8.5	2.39	101	119	133	144	155	178	201	220	324	408
0065	0242	65	70.0	84.0		42.52	60	79.0	82.0		23.66	10.9	2.41	84	103	117	128	141	171	198	221	334	416
0151	0415	50	66.0	83.0	92.0	16.78	60	72.0	90.0	72.0	15.84	8.7	2.37	96	114	127	138	148	173	195	214	327	398
0076	0269	60	74.0	84.0		26.74	60	85.0	99.0		8.10	11.2	2.40	85	103	120	134	146	174	200	224	331	416
0069	0247	55	72.0	84.0		22.80	60	89.0	88.0		19.60	10.9	2.41	84	103	117	128	141	171	199	221	334	416
0131	0402	50	80.0	84.0	84.0	25.85	60	80.0	91.0	89.0	11.31	8.7	2.38	96	114	129	141	153	176	198	216	329	402
0092	0311	60	70.0	84.0		23.41	60	82.0	86.0		51.20	9.0	2.37	90	112	124	136	147	174	195	214	330	412
0041	0165	55	70.0	84.0		14.22	60	81.0	86.0		7.39	11.2	2.40	84	100	115	128	140	170	196	216	330	408
0049	0183	70	68.0	84.0		40.02	60	80.0	80.0		15.57	11.2	2.40	84	100	115	128	140	170	196	216	330	408
0048	0184	55	74.0	83.0		32.38	60	85.0	82.0		13.08	11.2	2.40	84	100	115	128	140	170	196	216	330	408
0099	0315	60	71.0	84.0		.35	60	78.0	84.0		2.68	9.0	2.37	90	112	124	136	147	174	195	214	330	412
0125	0365	65	84.0	84.0	86.0	13.94	60	84.0	94.0	91.0	9.47	8.4	2.38	96	117	132	144	156	178	199	219	322	406
0062	0235	65	69.0	84.0		17.92	60	79.0	76.0		10.47	10.9	2.41	84	103	117	128	141	171	198	221	334	416
0167	0439	50	83.0	84.0	96.0	18.33	60	82.0	98.0	74.0	11.89	8.6	2.39	95	118	131	144	158	184	207	227	334	420
0168	0442	50	74.0	84.0	72.0	1.55	60	82.0	92.0	74.0	3.20	8.6	2.39	95	118	131	144	158	184	207	227	334	420
0003	0193	60	70.0	84.0		40.62	60	82.0	88.0		13.15	11.0	2.38	83	102	114	126	137	166	193	215	330	412
0060	0232	60	70.0	84.0		13.23	60	79.0	78.0		18.74	10.9	2.41	84	103	117	128	141	171	198	221	334	416
0136	0383	55	72.0	84.0	76.0	14.48	60	72.0	87.0	83.0	8.23	8.2	2.37	94	112	128	141	152	177	199	219	330	416
0152	0420	60	69.0	85.0	66.0	9.22	60	72.0	81.0	80.0	9.09	8.7	2.37	96	114	127	138	148	173	196	214	327	398
0152	0429R	55	72.0	84.0	81.0	8.80	60	74.0	82.0	80.0	10.46	8.8	2.38	96	114	131	144	158	184	208	228	340	410
0016	0126	70	78.0	84.0		62.91	60	80.0	68.0		9.04	10.2	2.40	90	108	120	131	143	168	195	221	332	418
0039	0159	55	73.0	84.0		25.20	60	82.0	84.0		12.16	11.2	2.40	84	100	115	128	140	170	196	216	330	408
0021	0132	60	71.0	84.0		28.07	60	81.0	86.0		20.58	10.2	2.40	90	108	120	131	143	168	195	221	332	418
0061	0236	60	69.0	84.0		23.03	60	80.0	80.5		15.93	10.9	2.41	84	103	117	128	141	171	198	221	334	416
0109	0338	50	64.0	84.0		21.70	60	80.0	83.0		4.45	8.9	2.38	97	114	126	137	148	172	197	219	330	410
0025	0139	55	70.0	84.0		44.48	60	80.0	86.0		7.68	10.2	2.40	90	108	120	131	143	168	195	221	332	418
0070	0245	60	69.0	84.0		84.20	60	80.0	83.0		11.79	10.9	2.41	84	103	117	128	141	171	198	221	334	416
0089	0286	60	70.0	84.0	87.0	113.29	60	74.0	72.0	82.0	8.54	10.8	2.41	87	99	115	129	144	175	201	222	329	405
0055	0224	55	74.0	84.0		25.68	60	82.0	85.0		19.31	10.1	2.41	85	101	117	130	144	175	202	224	332	406
0080	0270	60	71.0	84.0		54.45	60	80.0	82.0		16.05	11.2	2.40	85	103	120	134	146	174	200	224	331	416
0132	0378	60	76.0	83.0	82.0	25.49	60	84.0	85.0	84.0	9.11	8.3	2.37	96	115	130	142	153	177	199	218	326	402
0085	0275	60	71.0	84.0		11.74	60	73.0	70.0		3.86	10.8	2.41	87	99	115	129	144	175	201	222	329	405
0087	0277	70	70.0	84.0	76.0	89.68	60	73.0	73.0	74.0	14.09	10.8	2.41	87	99	115	129	144	175	201	222	329	405
0050	0188	55	75.0	84.0		12.23	60	82.0	82.5		11.40	11.2	2.40	84	100	115	128	140	170	196	216	330	408
0100	0382	60	77.0	84.0	82.0	11.54	60	75.0	82.0	81.0	5.63	8.7	2.38	96	117	132	143	155	178	200	219	328	408
0100	0387R	55	71.0	84.0	80.0	10.83	60	76.0	82.0	81.0	7.72	8.2	2.37	94	112	128	141	152	177	199	219	330	416
0154	0425	60	73.0	84.0	90.0	10.34	60	84.0	90.0	86.0	8.87	8.7	2.38	94	114	126	137	148	175	198	218	321	412
0064	0237	65	69.0	84.0		23.81	60	77.0	81.0		11.36	10.9	2.41	84	103	117	128	141	171	198	221	334	416
0140	0394	55	66.0	84.0	72.0	14.72	60	70.0	79.0	77.0	3.88	8.7	2.38	96	114	129	141	153	176	198	216	329	402
0020	0131	55	80.0	84.0		10.32	60	84.0	86.0		24.42	10.2	2.40	90	108	120	131	143	168	195	221	332	418
0174	0465	50	76.0	84.0	85.0	17.49	60	81.0	85.0	82.0	7.28	8.3	2.37	99	126	139	150	161	183	206	223	330	418
0164	0450	55	78.0	84.0	73.0	18.75	60	87.0	95.0	85.0	16.86	9.1	2.38	94	120	133	146	157	182	202	220	326	441
0037	0153	60	74.0	84.0		21.98	60	81.0	83.0		20.65	11.2	2.40	84	100	115	128	140	170	196	216	330	408

1 -- EXTERNAL FUEL TANK TEMPERATURE NOT AVAILABLE FOR ALL VEHICLES

		DIURNAL				HOT SOAK															
CAR#	RUN#	TIME	ENCL TEMP	INT TEMP	EXT TEMP	HC/GMS	TIME	ENCL TEMP	INT TEMP	EXT TEMP	HC/GMS	RVP	H/C	IBP	5%	10%	15%	20%	30%	40%	50%	90%	FBP
0130	0373	60	75.0	84.0	80.0	24.34	60	84.0	93.0	90.0	16.55	8.3	2.37	96	115	130	142	153	177	199	218	326	402
0072	0250	60	68.0	84.0		24.07	60	85.0	84.0		14.35	10.9	2.41	84	103	117	128	141	171	198	221	334	416
0117	0348	55	80.0	84.0		11.43	60	82.0	85.0		21.37	8.5	2.39	101	119	133	144	155	178	201	220	324	408
0135	0379	50	81.0	84.0	80.0	10.75	60	83.0	89.0	86.0	17.60	8.3	2.37	96	115	130	142	153	177	199	218	326	402
0088	0281	60	69.0	84.0	78.0	52.43	60	78.0	72.0	76.0	19.35	10.8	2.41	87	99	115	129	144	175	201	222	329	405
0086	0276	60	69.0	84.0		17.60	60	76.0	82.0		15.61	10.8	2.41	87	99	115	129	144	175	201	222	329	405
0026	0138	55	70.0	85.0		29.11	60	80.0	82.0		14.64	10.2	2.40	90	108	120	131	143	168	195	221	332	418
0033	0146	60	68.0	84.0		5.99	60	76.0	84.0		4.30	10.2	2.40	90	108	120	131	143	168	195	221	332	418
0068	0246	60	69.0	84.0		15.48	60	87.0	85.0		27.08	10.9	2.41	84	103	117	128	141	171	198	221	334	416
0067	0251	60	69.0	84.0		13.37	60	80.0	83.0		10.27	10.9	2.41	84	103	117	128	141	171	198	221	334	416
0071	0254	55	77.0	84.0		16.64	60	83.0	92.0		14.35	10.9	2.41	84	103	117	128	141	171	198	221	334	416
0133	0376	55	81.0	84.0	86.0	6.28	60	85.0	90.0	88.0	8.40	8.3	2.37	96	115	130	142	153	177	199	218	326	402
0133	0381R	55	78.0	84.0	84.0	7.86	60	79.0	88.0	85.0	-5.91	8.7	2.38	96	117	132	143	155	178	200	219	328	408
0023	0136	55	69.0	84.0		28.79	60	75.5	79.0		13.40	10.2	2.40	90	108	120	131	143	168	195	221	332	418
0134	0380	60	74.0	84.0	83.0	11.67	60	80.0	85.0	78.0	11.40	8.7	2.38	96	117	132	143	155	178	200	219	328	408
0134	0390R	55	77.0	84.0	83.0	11.29	60	80.0	87.0	73.0	-14.23	8.2	2.37	94	112	128	141	152	177	199	219	330	416
0139	0391	55	80.0	84.0	85.0	11.82	60	80.0	86.0	85.0	16.55	8.7	2.38	96	114	129	141	153	176	198	216	329	402
0040	0166	55	73.0	84.0		15.77	60	80.0	84.0		16.51	11.2	2.40	84	100	115	128	140	170	195	216	330	408
0114	0343	55	70.0	84.0		12.50	60	78.0	83.0		8.06	8.9	2.38	97	114	126	137	148	172	197	218	330	410
0115	0350	55	75.0	84.0		12.91	60	80.0	86.0		15.24	8.5	2.39	101	119	133	144	155	178	201	220	324	408
0017	0129	60	71.0	83.0		12.54	60	84.0	86.0		25.48	10.2	2.40	90	108	120	131	143	168	195	221	332	418
0063	0238	55	70.0	84.5		27.46	60	79.0	89.0		13.51	10.9	2.41	84	103	117	128	141	171	198	221	334	416
0075	0253	60	72.0	84.0		26.16	60	87.0	95.0		19.60	10.9	2.41	84	103	117	128	141	171	198	221	334	416
0144	0406	55	75.0	84.0	83.0	21.68	60	84.0	98.0	94.0	16.78	8.7	2.38	96	114	129	141	153	176	198	216	329	402
0030	0143	60	68.0	84.0		12.19	60	80.0	82.0		14.41	10.2	2.40	90	108	120	131	143	168	195	221	332	418
0066	0243	65	71.0	83.5		19.15	60	86.0	87.0		25.34	10.9	2.41	84	103	117	128	141	171	198	221	334	416
0110	0344	60	76.0	84.0		11.09	60	81.0	85.0		12.92	8.9	2.38	97	114	126	137	148	172	197	218	330	410
0113	0346	50	72.0	84.0		16.17	60	76.0	81.0		12.25	8.9	2.38	97	114	126	137	148	172	197	218	330	410
0110	0356R	55	75.0	84.0		12.42	60	75.0	83.0		-11.70	8.5	2.39	101	119	133	144	155	178	201	220	324	408
0044	0173	55	69.0	84.0		15.77	60	79.0	82.0		16.52	11.2	2.40	84	100	115	128	140	170	195	216	330	408
0047	0174	55	72.0	84.0		20.26	60	77.0	82.0		10.36	11.2	2.40	84	100	115	128	140	170	194	216	330	408
0106	0335	55	71.0	84.0		13.48	60	74.0	79.0		12.76	8.9	2.38	97	114	126	137	148	172	197	218	330	410
0143	0398	55	69.0	84.0	79.0	12.38	60	70.0	87.0	73.0	10.58	8.7	2.38	96	114	129	141	153	176	198	216	329	402
0058	0223	65	72.0	84.0		38.85	60	84.0	86.0		15.27	10.1	2.41	85	101	117	130	144	175	202	224	332	406
0058	0229R	65	66.0	84.0		28.15	60	79.0	78.0		-12.19	10.9	2.41	84	103	117	128	141	171	198	221	334	416
0090	0282	70	70.0	84.0	82.0	113.66	60	79.0	78.0	80.0	17.02	10.6	2.41	87	104	119	131	143	174	201	225	330	416
0096	0312	70	72.0	84.0		18.42	60	77.0	81.0		1.87	9.0	2.37	90	112	124	136	147	174	196	214	330	412
0002	0233	55	69.0	84.0		41.74	60	80.0	77.0		27.80	10.9	2.41	84	103	117	128	141	171	198	221	334	416
0161	0437	65	72.0	84.0	79.0	12.24	60	78.0	91.0	88.0	24.89	8.6	2.39	95	118	131	144	158	184	207	227	334	420
0038	0158	60	71.0	84.0		28.97	60	82.0	85.0		24.96	11.2	2.40	84	100	115	128	140	170	195	216	330	408
0056	0217	60	72.0	84.0		38.01	60	85.0	88.0		22.45	10.1	2.41	85	101	117	130	144	175	202	224	332	406
0082	0273	70	73.0	84.0		49.93	60	81.0	90.0		31.40	10.8	2.41	87	99	115	129	144	175	201	222	329	405
0094	0325	60	74.0	84.0		13.98	60	81.0	89.0		16.46	8.8	2.37	96	113	126	137	148	172	194	213	333	404
0182	0477	65	75.0	84.0	93.0	2.77	60	84.0	98.0	93.0	8.60	8.7	2.37	96	121	135	147	159	184	205	221	327	414
0104	0316	65	74.0	84.0		26.67	60	81.0	89.0		15.40	9.0	2.37	90	112	124	136	147	174	196	214	330	412
0104	0322R	60	77.0	84.0		19.25	60	80.0	93.0		-9.52	8.8	2.37	96	113	126	137	148	172	194	213	333	404
0022	0135	65	68.0	84.0		42.82	60	78.0	85.0		14.41	10.2	2.40	90	108	120	131	143	168	195	221	332	418
0148	0410	55	69.0	84.0	77.0	19.38	60	71.0	81.0	80.0	9.62	8.7	2.37	96	114	127	138	148	173	195	214	327	398
0054	0211	70	72.0	84.0		27.76	60	85.0	88.0		38.59	10.1	2.41	85	101	117	130	144	175	202	224	332	406

		DIURNAL				HOT SOAK															
CAR#	RUN#	TIME	ENCL TEMP	INT TEMP	EXT TEMP	HC/GMS	TIME	ENCL TEMP	INT TEMP	EXT TEMP	HC/GMS	RVP	H/C	IBP	5%	10%	15%	20%	30%	40%	50%	90%	FBP
0101	0321	60	73.0	84.0		13.10	60	80.0	87.0		11.40	8.8	2.37	96	113	126	137	148	172	194	213	333	404
0166	0456	55	78.0	84.0	73.0	10.76	60	78.0	86.0	84.0	18.66	9.1	2.38	94	120	133	146	157	182	202	220	326	441
0126	0374	70	77.0	86.0	84.0	17.70	60	78.0	84.0	82.0	4.36	8.3	2.37	96	115	130	142	153	177	199	218	326	402
0128	0367	60	74.0	86.0	87.0	12.86	60	78.0	86.0	90.0	5.22	8.4	2.38	96	117	132	144	156	178	199	219	322	406
0129	0369	60	79.0	84.0	78.0	16.58	60	83.0	88.0	79.0	11.64	8.4	2.38	96	117	132	144	156	178	199	219	322	406
0036	0148	55	74.0	84.0		14.85	60	81.0	84.0		14.19	10.2	2.40	90	108	120	131	143	168	195	221	332	418
0043	0170	55	74.0	84.0		19.35	60	78.0	83.0		28.22	11.2	2.40	84	100	115	128	140	170	196	216	330	408
0158	0431	50	73.0	84.0	79.0	26.20	60	80.0	86.0	72.0	17.33	8.7	2.38	90	109	126	140	153	180	204	223	335	414
0107	0334	65	72.0	84.0		23.84	60	81.0	87.0		20.91	8.7	2.37	97	114	129	140	152	174	197	218	328	400
0079	0261	60	70.0	84.0		28.68	60	81.0	84.0		20.87	11.2	2.40	85	103	120	134	146	174	200	224	331	416
0138	0393	65	70.0	84.0	80.0	10.19	60	72.0	82.0	75.0	11.27	8.7	2.38	96	114	129	141	153	176	198	215	329	402
0118	0355	50	76.0	84.0		1.47	60	80.0	88.0		6.83	8.5	2.39	101	119	133	144	155	178	201	220	324	408
0027	0137	60	68.0	84.0		43.55	60	80.0	86.0		15.24	10.2	2.40	90	108	120	131	143	168	195	221	332	418
0029	0142	55	70.0	84.0		34.84	60	78.0	85.0		15.94	10.2	2.40	90	108	120	131	143	168	195	221	332	418
0147	0409	60	77.0	84.0	80.0	17.86	60	75.0	88.0	85.0	11.06	8.7	2.37	96	114	127	138	148	173	196	214	327	398
0018	0130	60	82.5	83.0		8.86	60	85.0	84.0		14.82	10.2	2.40	90	108	120	131	143	168	195	221	332	418
0150	0413	55	74.0	84.0	70.0	16.88	60	73.0	82.0	78.0	5.42	8.7	2.37	96	114	127	138	148	173	196	214	327	398
0034	0149	55	75.0	84.0		32.05	60	82.0	85.0		14.98	10.2	2.40	90	108	120	131	143	168	195	221	332	418
0103	0319	55	73.0	84.0		14.29	60	80.0	85.0		17.33	8.8	2.37	96	113	126	137	148	172	194	213	333	404
0123	0361	60	78.0	84.0	83.0	17.10	60	75.0	85.0	85.0	9.58	8.4	2.38	96	117	132	144	156	178	199	219	322	406
0171	0460	60	72.0	84.0	80.0	16.48	60	80.0	87.0	85.0	13.65	9.1	2.38	94	120	133	146	157	182	202	220	326	441
0163	0435	55	75.0	84.0	94.0	20.82	60	89.0	93.0	83.0	17.11	8.6	2.39	92	117	132	145	157	186	208	228	339	410
0105	0331	60	77.0	84.0		18.30	60	85.0	92.0		8.87	8.7	2.37	97	114	129	140	152	174	197	218	328	400
0142	0397	55	78.0	84.0	83.0	12.05	60	76.0	86.0	85.0	7.17	8.7	2.38	96	114	129	141	153	176	198	216	329	402
0045	0194	60	72.0	84.0		62.25	60	84.0	88.0		17.26	11.0	2.38	83	102	114	126	137	166	193	215	330	402
0073	0264	60	72.0	84.0		29.40	60	82.0	85.0		13.57	11.2	2.40	85	103	120	134	146	174	200	224	331	416
0098	0329	65	82.0	85.0		1.32	60	78.0	86.0		.90	8.7	2.37	97	114	129	140	152	174	197	218	328	400
0032	0154	55	74.0	84.0		14.41	60	76.0	75.0		2.38	11.2	2.40	84	100	115	128	140	170	196	216	330	408
0019	0133	55	76.0	84.0		38.47	60	75.0	78.0		2.40	10.2	2.40	90	108	120	131	143	168	195	221	332	418
0053	0212	55	76.0	84.0		19.01	60	76.0	74.0		4.22	10.1	2.41	85	101	117	130	144	175	202	224	332	406
0053	0216R	60	79.0	84.0		20.26	60	79.0	80.0		2.71	10.1	2.41	85	101	117	130	144	175	202	224	332	406
0159	0433	60	79.0	84.0	89.0	24.33	60	80.0	87.0	72.0	16.29	8.3	2.38	89	114	128	142	155	184	207	226	339	408
0149	0412	50	68.0	84.0	81.0	4.19	60	76.0	73.0	73.0	3.47	8.7	2.37	96	114	127	138	148	173	196	214	327	398
0052	0207	55	77.0	84.0		24.16	60	76.0	86.0		15.81	10.1	2.41	85	101	117	130	144	175	202	224	332	406
0052	0257R	65	70.0	84.0		75.04	60	67.0	80.0		25.05	10.9	2.41	84	103	117	128	141	171	198	221	334	416
0057	0228	65	69.0	84.0		42.77	60	69.0	69.0		5.08	10.9	2.41	84	103	117	128	141	171	198	221	334	416
0051	0197	55	78.0	84.0		10.84	60	79.0	83.0		8.61	11.0	2.38	83	102	114	126	137	156	193	215	330	402
0116	0347	60	75.0	84.0		5.56	60	80.0	85.0		2.09	8.9	2.38	97	114	126	137	148	172	197	218	330	410
					AVG*	23.53				AVG	13.75												

*Excluding Replicates

STUDY OF EMISSIONS ON LIGHT-DUTY VEHICLES IN SIX CITIES - DENVER — EVAPORATIVE EMISSIONS TEST RESULTS AND FUEL ANALYSIS 112

		DIURNAL				HOT SOAK															
CAR#	RUN#	TIME	ENCL TEMP	INT TEMP	EXT TEMP	HC/GMS	TIME	ENCL TEMP	INT TEMP	EXT TEMP	HC/GMS	RVP	H/C	IBP	5%	10%	15%	20%[2]	30%	40%	50%	90%	FBP
0163	0173	60	71.0	84.0		90.62	60	83.0	95.0		73.71	11.8	2.20	84	102	109	123				210	362	413
0051	0051	60	81.0	85.0		60.87	60	88.0	95.0		93.40	12.2	2.19	80	97	106	123				208	366	415
0061	0061	60	77.0	84.2		7.98	60	84.0	90.0		15.98	11.7	2.22	84	102	112	125				210	363	413
0114	0114	60	75.0	85.0		95.87	60	88.0	86.0		44.71	11.1	2.19	87	103	109	125				210	361	412
0140	0142	60	72.0	84.0		20.68	60	88.0	83.0		20.09	11.6	2.19	84	100	109	124				210	361	413
0145	0148	60	71.0	83.7		73.18	60	81.0	95.5		16.69	11.1	2.20	88	103	113	125				210	360	414
0155	0162	60	77.0	84.5		84.07	60	84.0	94.5		20.93	12.0	2.17	83	100	112	125				210	360	414
0141	0143	60	73.0	83.5		118.60	60	85.0	85.5		17.04	11.7	2.19	83	104	109	123				211	361	415
0167	0177	60	77.0	84.1		21.81	60	75.0	83.0		8.55	11.8	2.19	84	102	110	123				212	362	413
0167	0182R	60	76.0	84.3		35.61	60	77.0	87.0		26.63	11.9	2.20	83	101	109	122				210	363	415
0086	0086	60	72.0	85.7		52.37	60	79.0	90.0		61.57	11.9	2.17	84	102	113	124				211	360	414
0095	0095	60	74.0	83.0		17.91	60	82.0	87.0		62.01	11.5	2.19	87	103	114	125				211	361	413
0152	0158	60	77.0	84.2		11.00	60	81.0	94.5		44.92	11.9	2.19	84	102	110	120				211	362	413
0172	0185	60	72.0	84.0		57.65	60	85.0	87.0		22.96	11.8	2.19	83	101	109	123				210	362	415
0078	0078	60	76.0	84.0		15.11	60	86.0	86.0		30.70	11.9	2.20	83	100	110	124				210	362	413
0016	0016	60	75.0	84.2		78.04	60	81.0	83.8		34.34	12.0	2.19	83	99	105	125				209	364	415
0161	0170	60	77.0	83.8		7.96	60	79.0	87.0		11.10	11.5	2.21	87	102	114	122				211	361	413
0132	0134	60	74.0	84.0		15.86	60	81.0	93.0		88.36	11.8	2.17	83	102	110	124				210	360	414
0105	0105	60	77.0	85.0		81.94	60	88.0	93.0		31.12	10.2	2.19	89	104	110	126				213	359	413
0110	0110	60	77.0	84.0		3.15	60	81.0	82.0		20.99	11.6	2.21	86	102	112	123				209	362	414
0076	0076	60	78.0	84.0		29.35	60	82.0	85.0		26.29	11.7	2.19	82	99	110	124				210	360	414
					AVG*	47.20				AVG	34.78												

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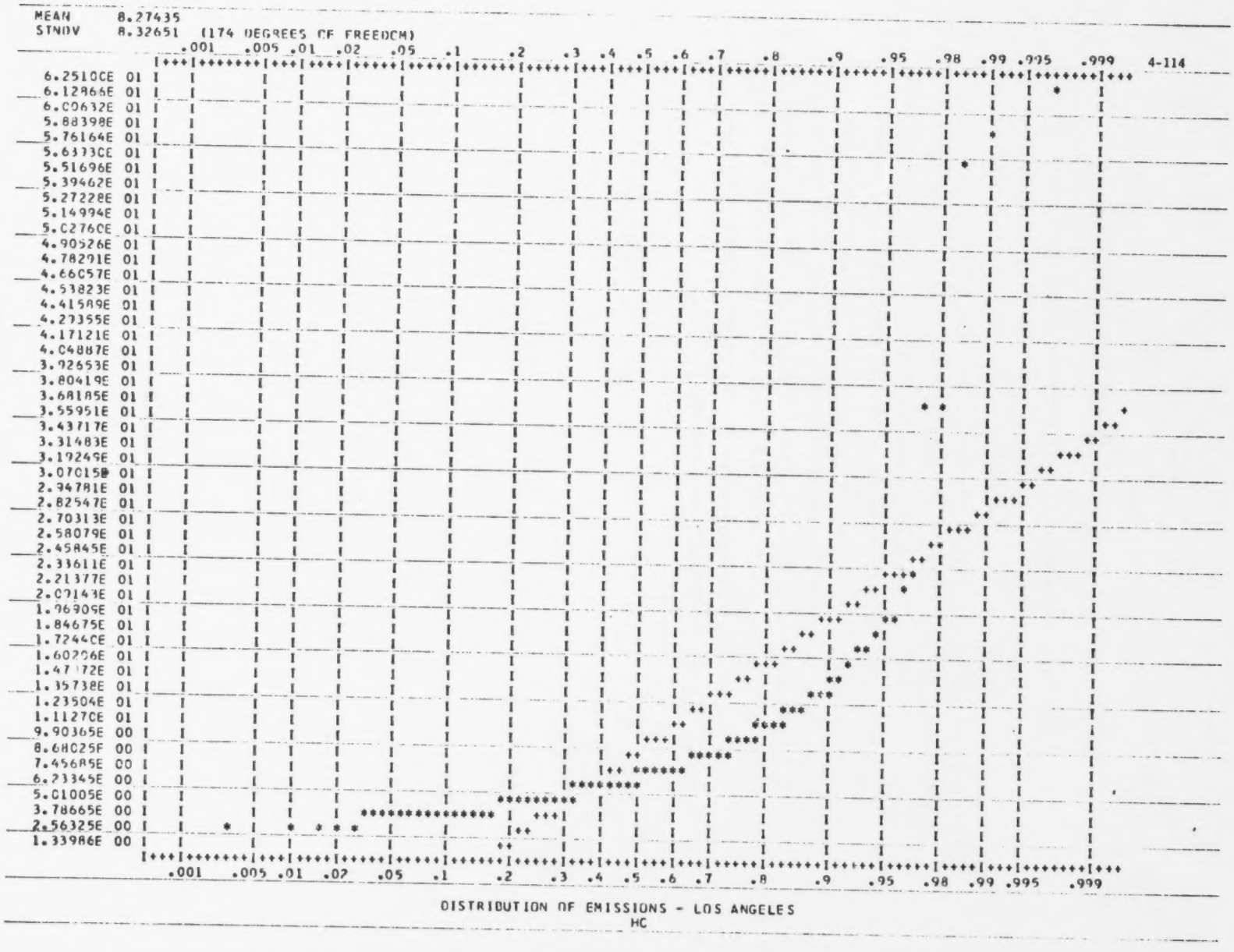
*EXCLUDING REPLICATES

2-DATA NOT AVAILABLE FOR 20%, 30% AND 40% POINTS FOR DENVER

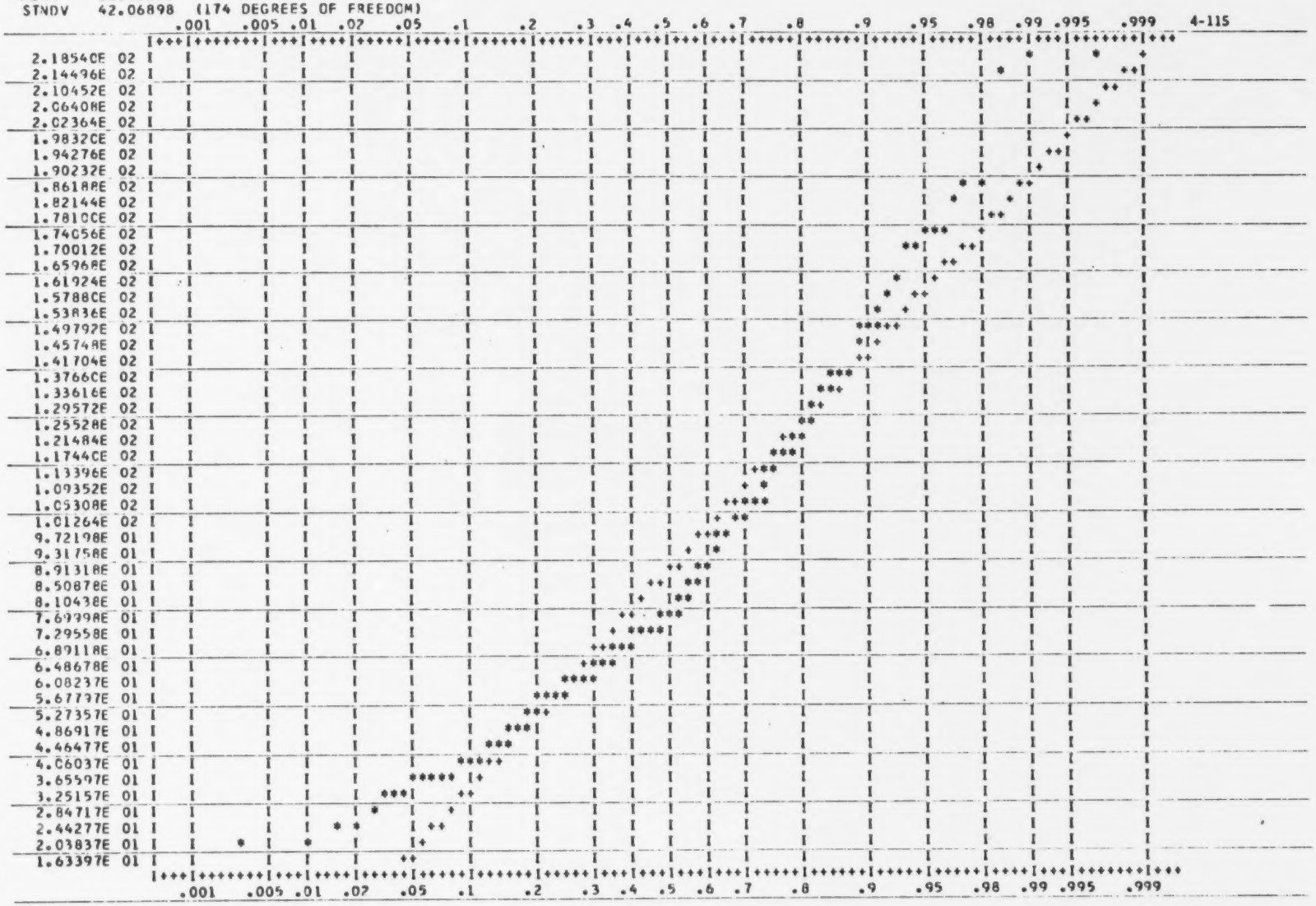
4.6 CUMULATIVE FREQUENCY DISTRIBUTION OF 1972 FEDERAL TEST DATA

This section contains cumulative frequency distributions of the 1972 Federal test results for each of the six cities. The left margin contains class boundary values of hydrocarbon, carbon monoxide, carbon dioxide and oxides of nitrogen effluents, expressed in scientific notation. The lower margin denotes the percentage of the test vehicle sample which has emission levels less than the corresponding class boundary value. Also included at the top left corner is the mean, standard deviation, and degrees of freedom for the data presented. The cumulative frequency curve is plotted using an asterisk (*) to represent data points. Superimposed on the graph are plus (+) signs representing a normal cumulative frequency distribution having the same mean and standard deviation as the actual distribution presented. Also included are cumulative frequency distributions of the effluents by city based upon the log transformation of the data.



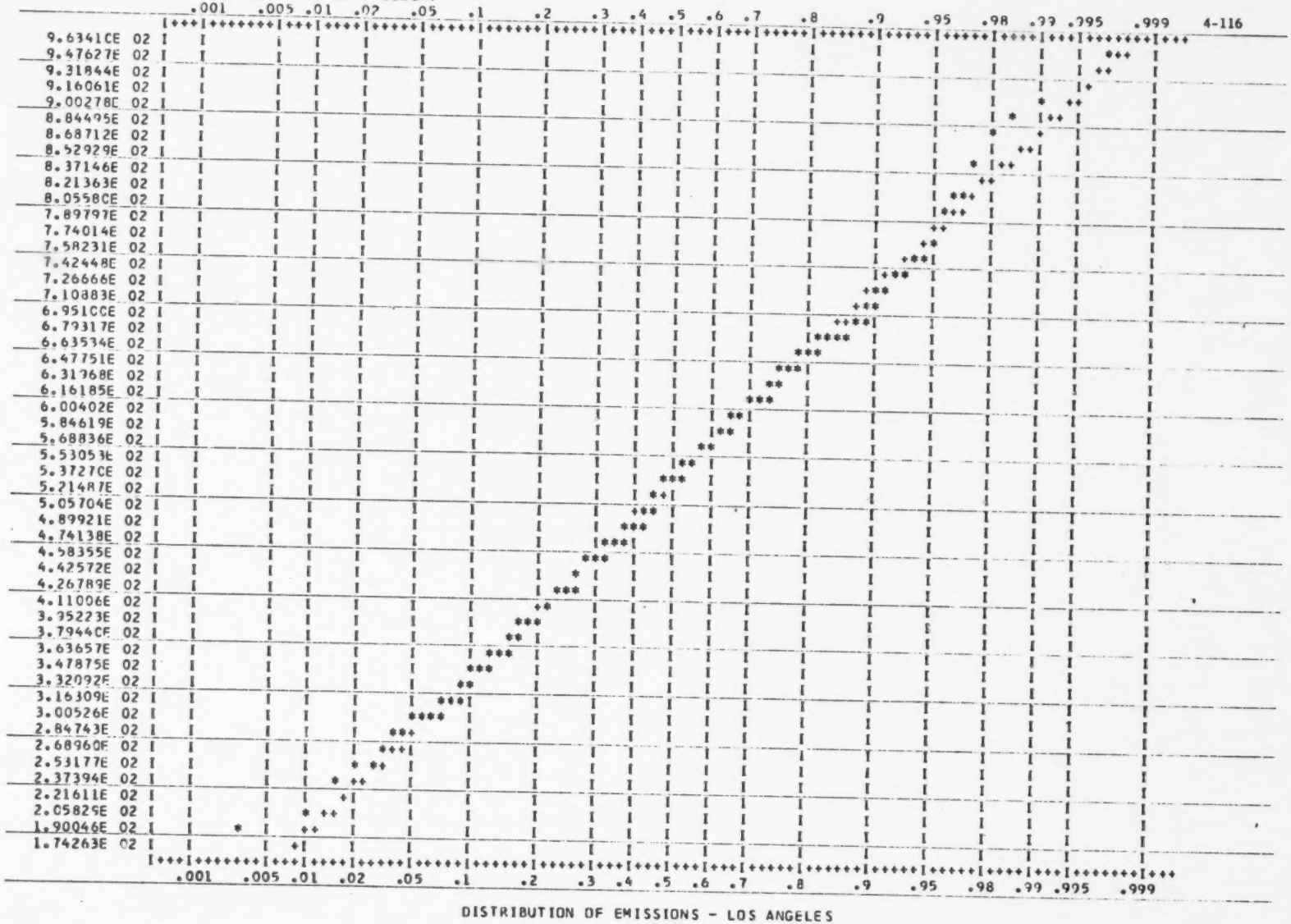
DISTRIBUTION OF EMISSIONS - LOS ANGELES
HC

MEAN 86.46658
STNDV 42.06898 (174 DEGREES OF FREEDOM)



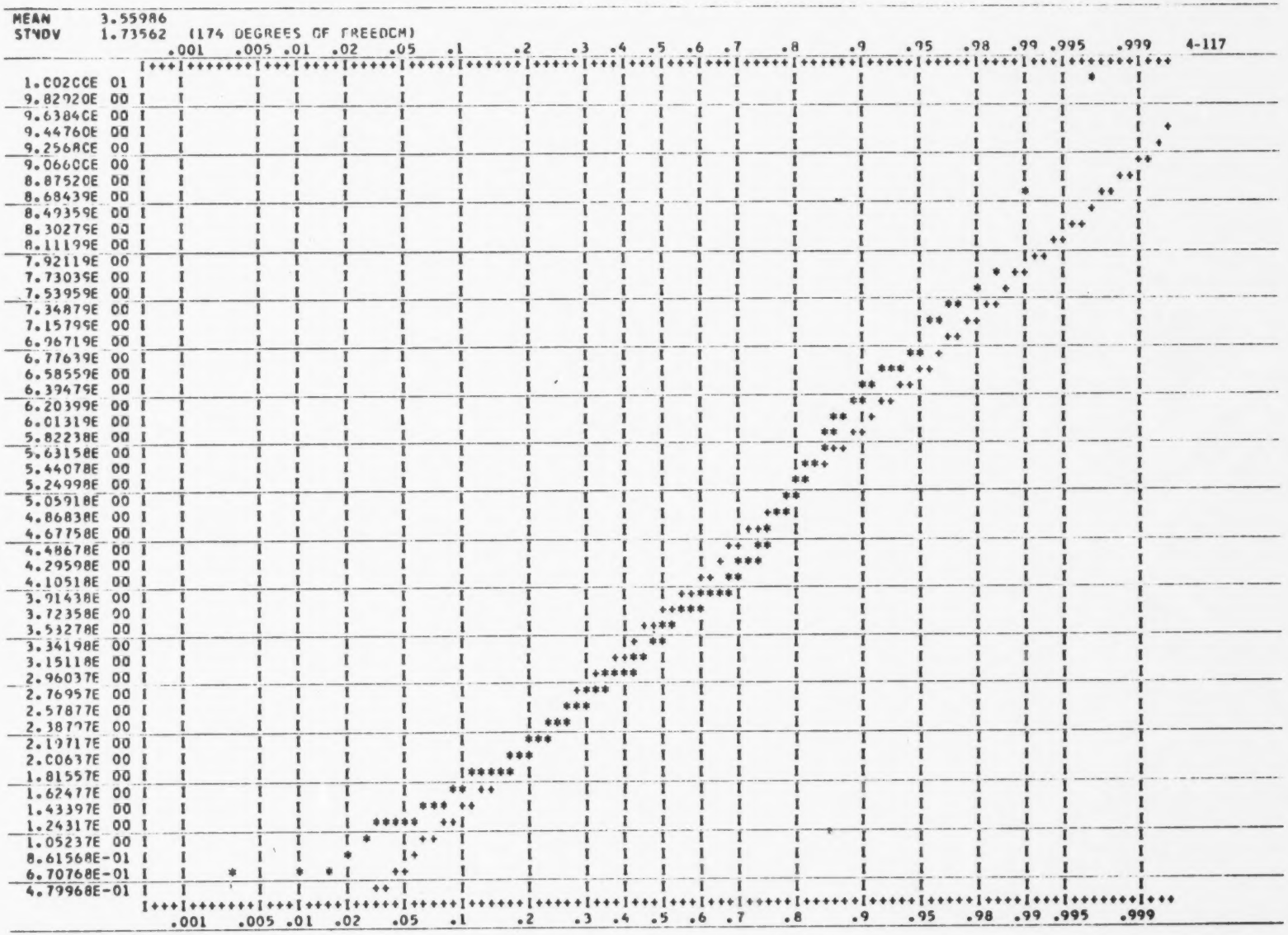
DISTRIBUTION OF EMISSIONS - LOS ANGELES
CO

MEAN 526.96851
STNDV 148.72659 (174 DEGREES OF FREEDOM)

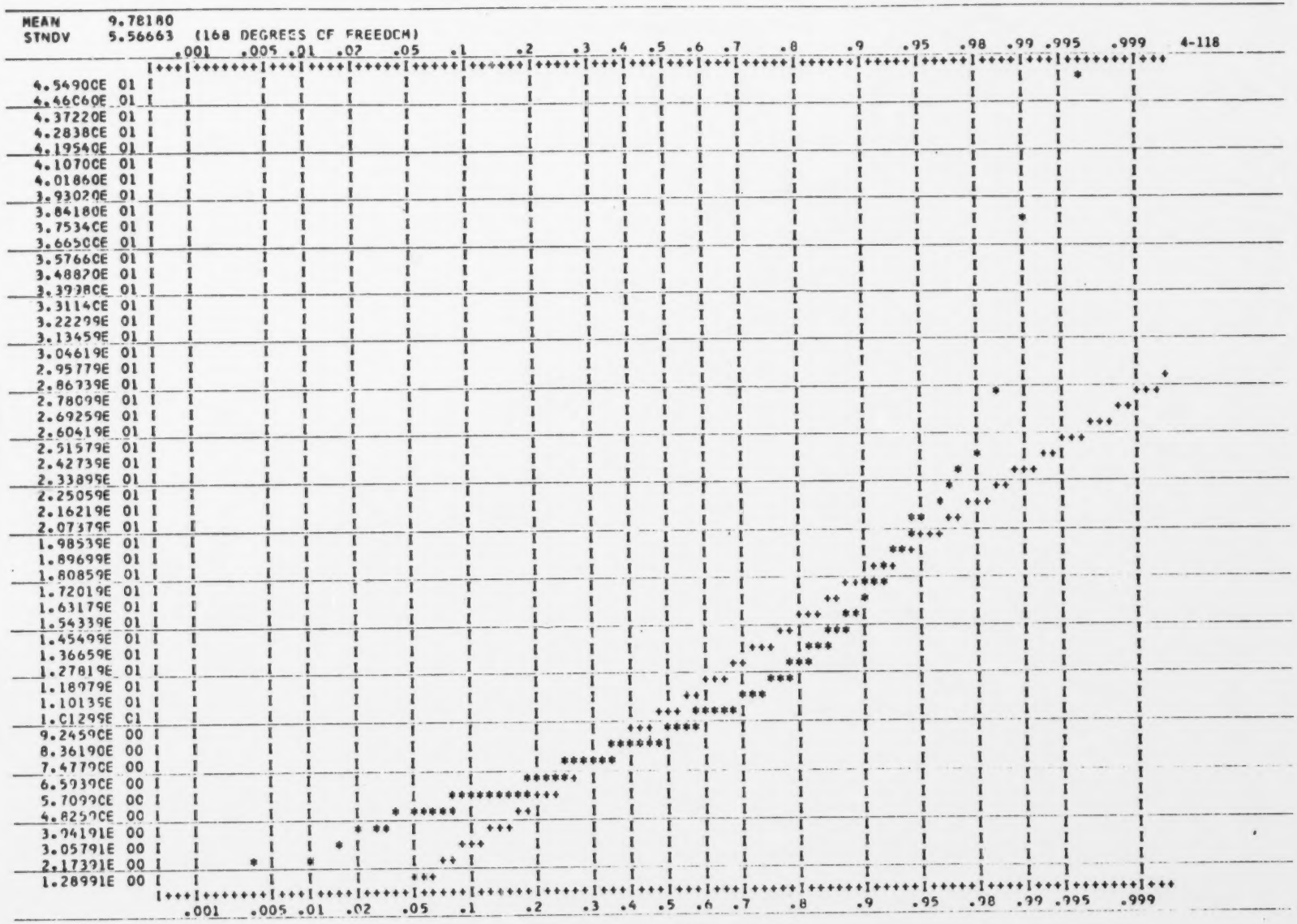


DISTRIBUTION OF EMISSIONS - LOS ANGELES
CO2

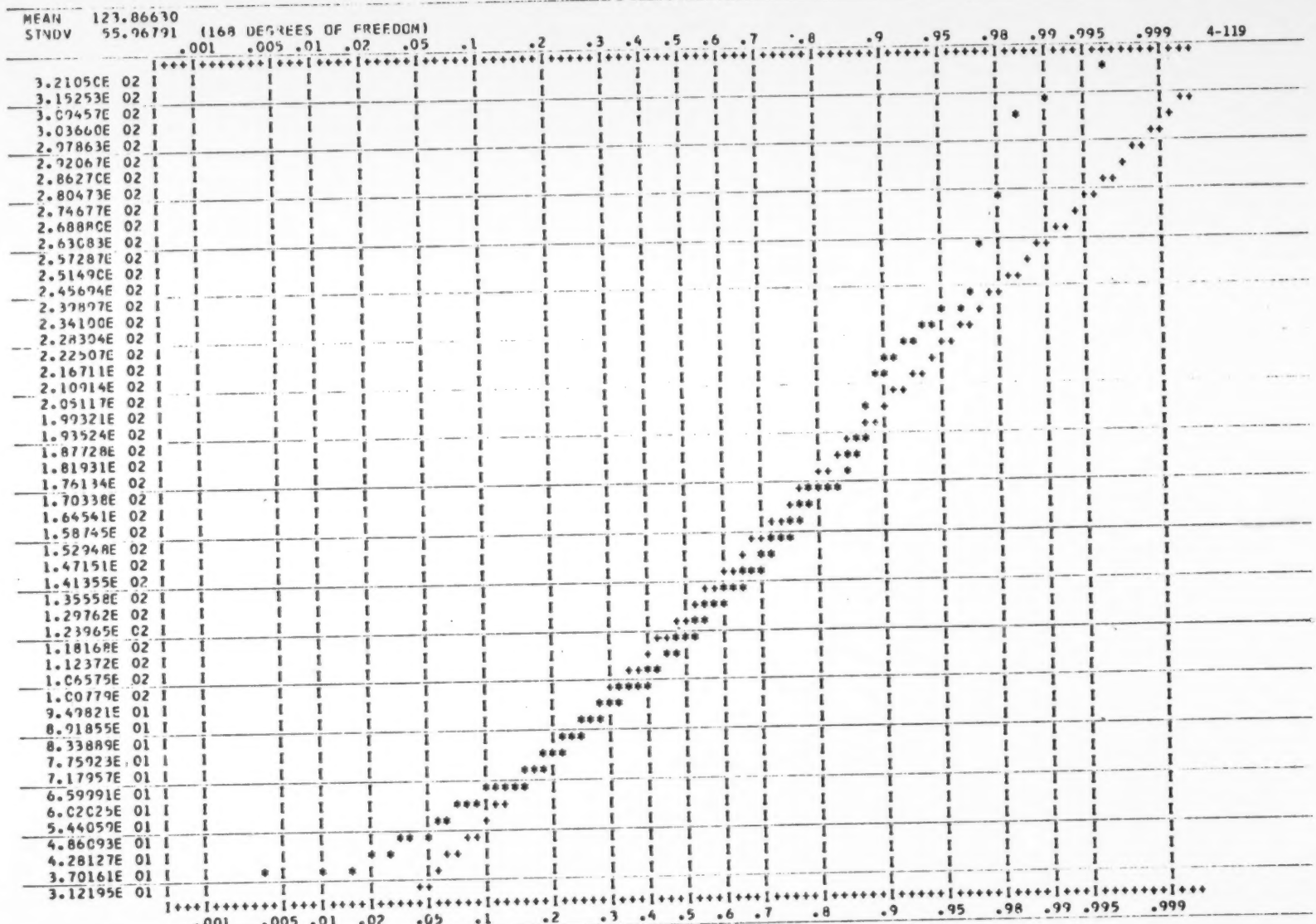
MEAN 3.55986
STNDV 1.73562 (174 DEGREES OF FREEDOM)



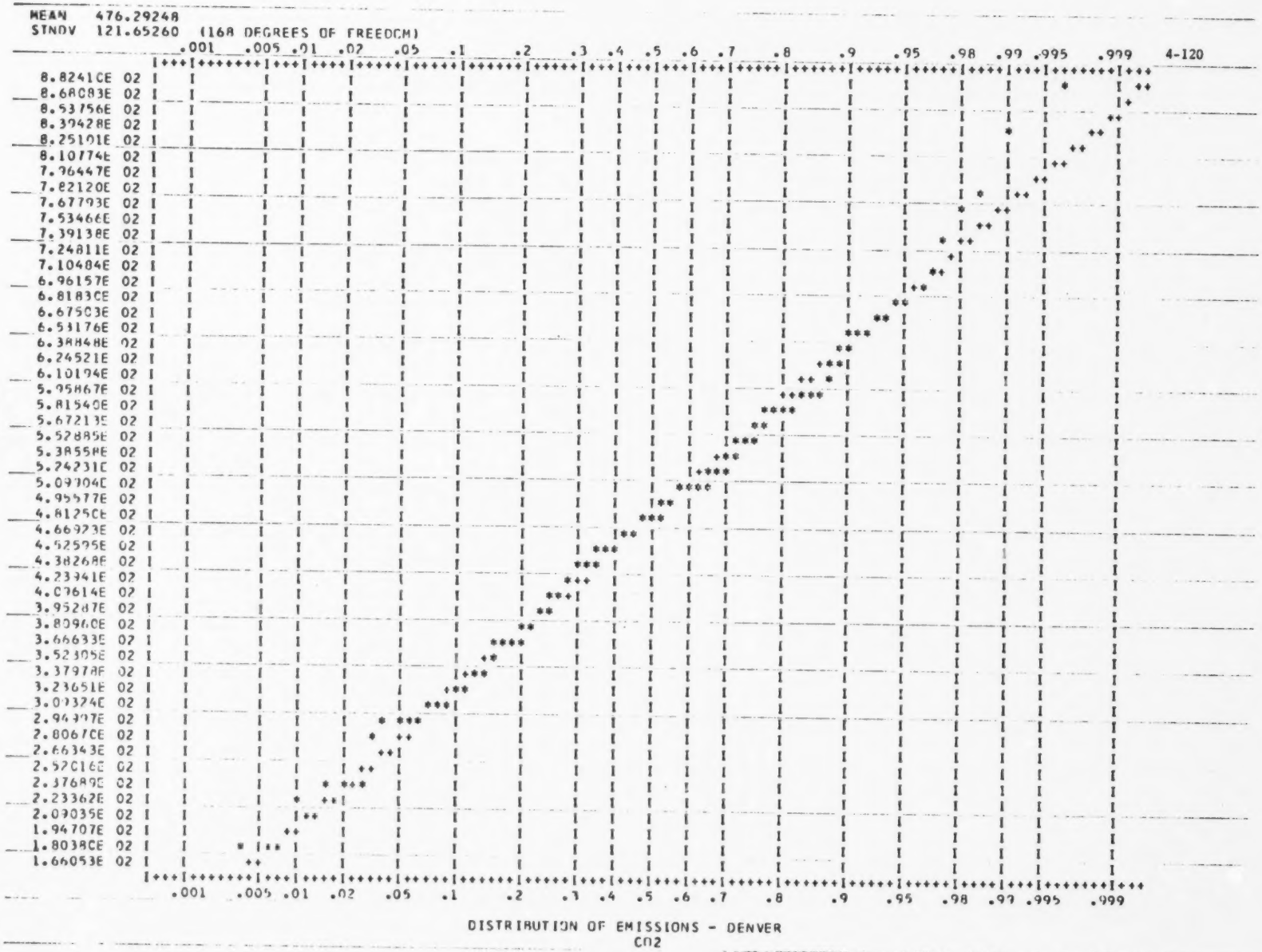
DISTRIBUTION OF EMISSIONS - LOS ANGELES
NOX



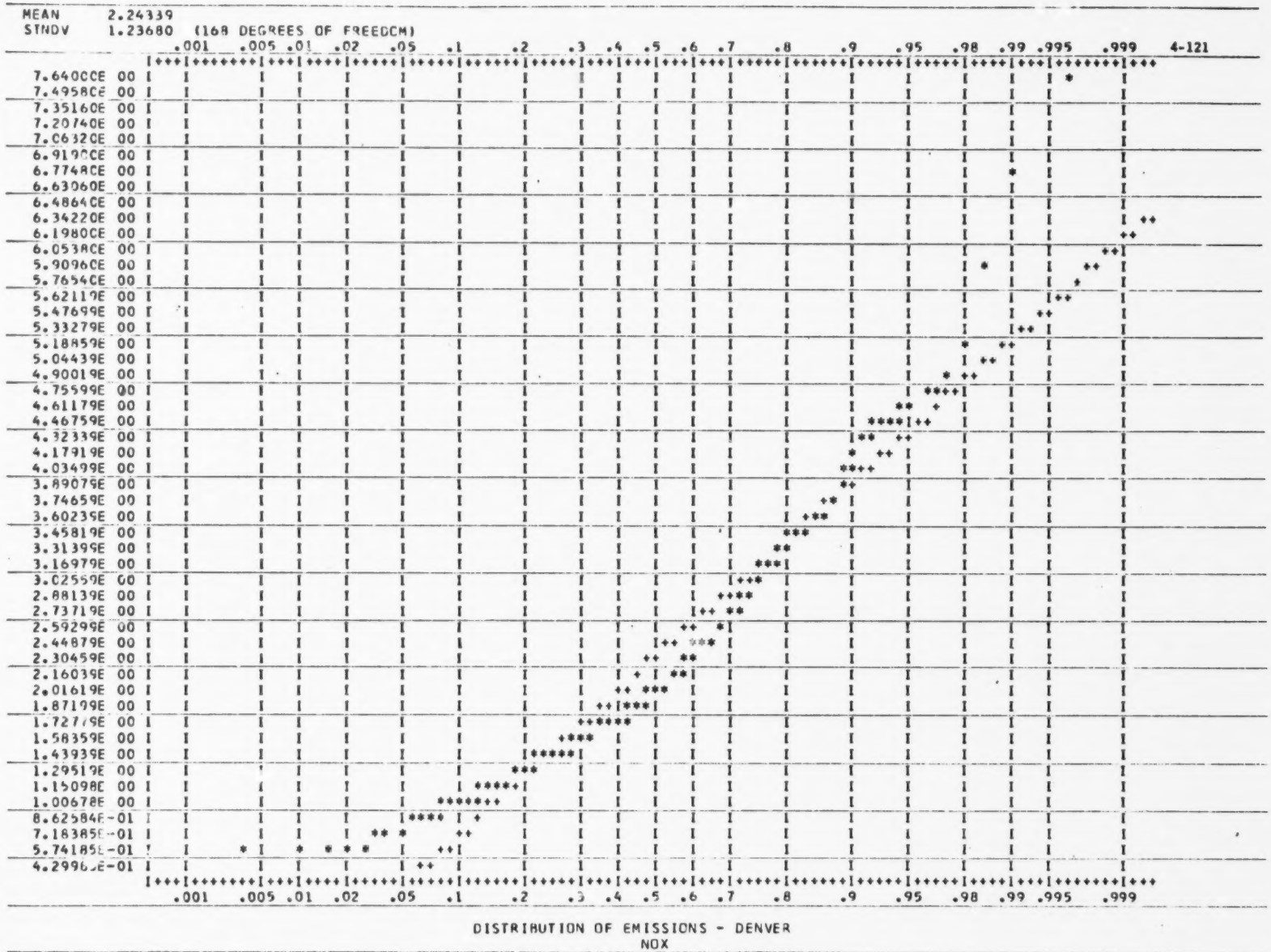
DISTRIBUTION OF EMISSIONS - DENVER
HC



DISTRIBUTION OF EMISSIONS - DENVER
CO

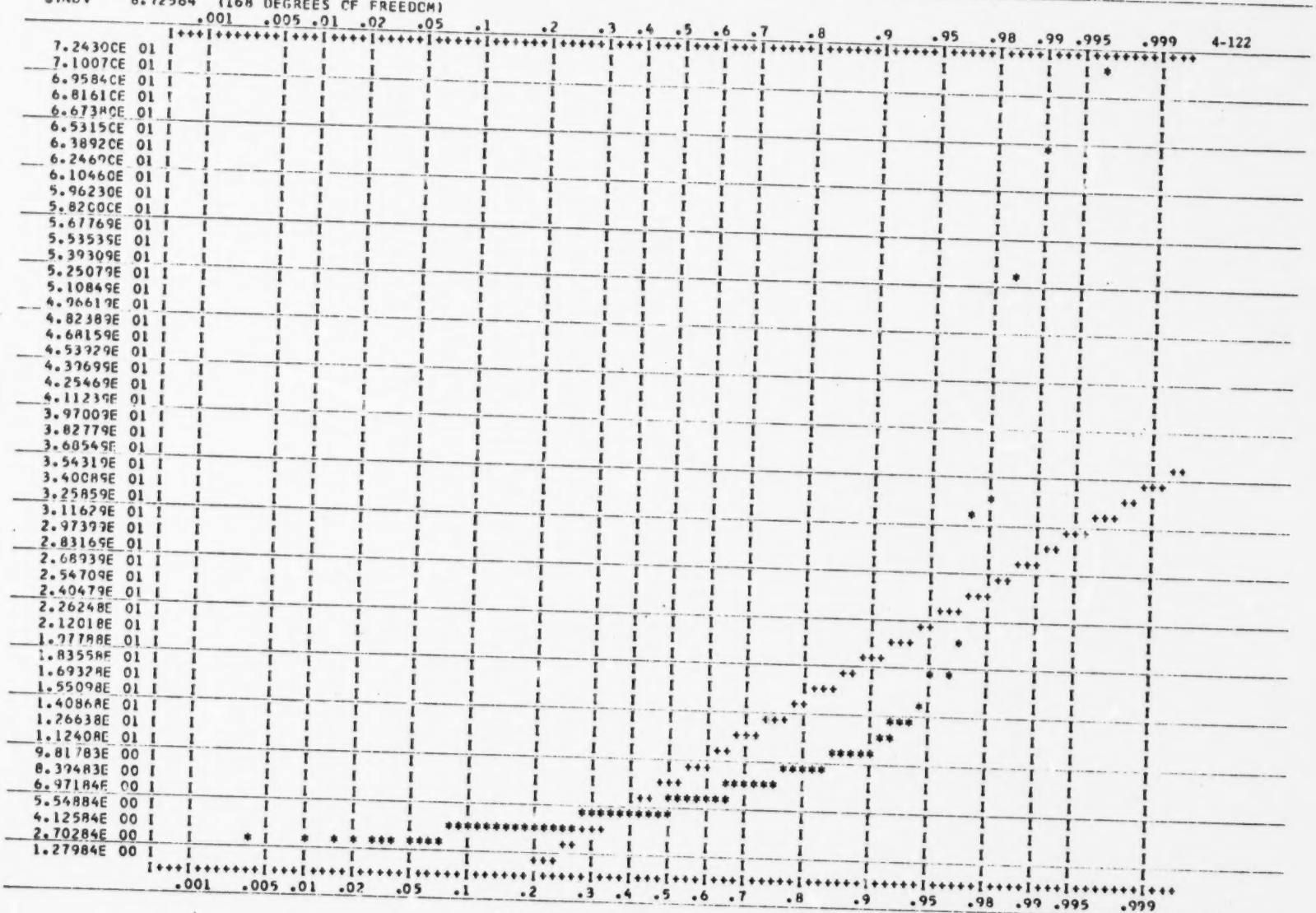


DISTRIBUTION OF EMISSIONS - DENVER
CO2

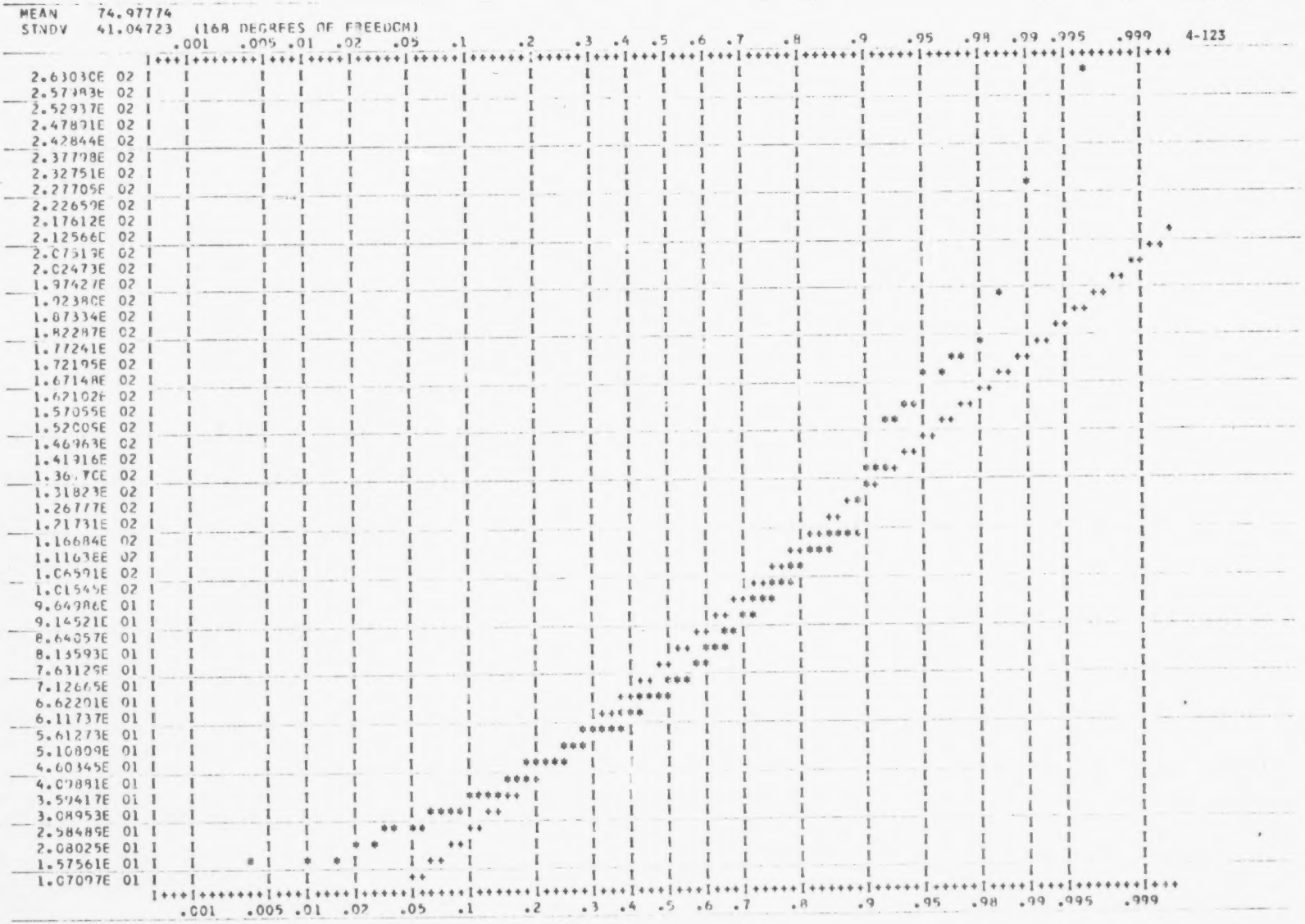


DISTRIBUTION OF EMISSIONS - DENVER
NOX

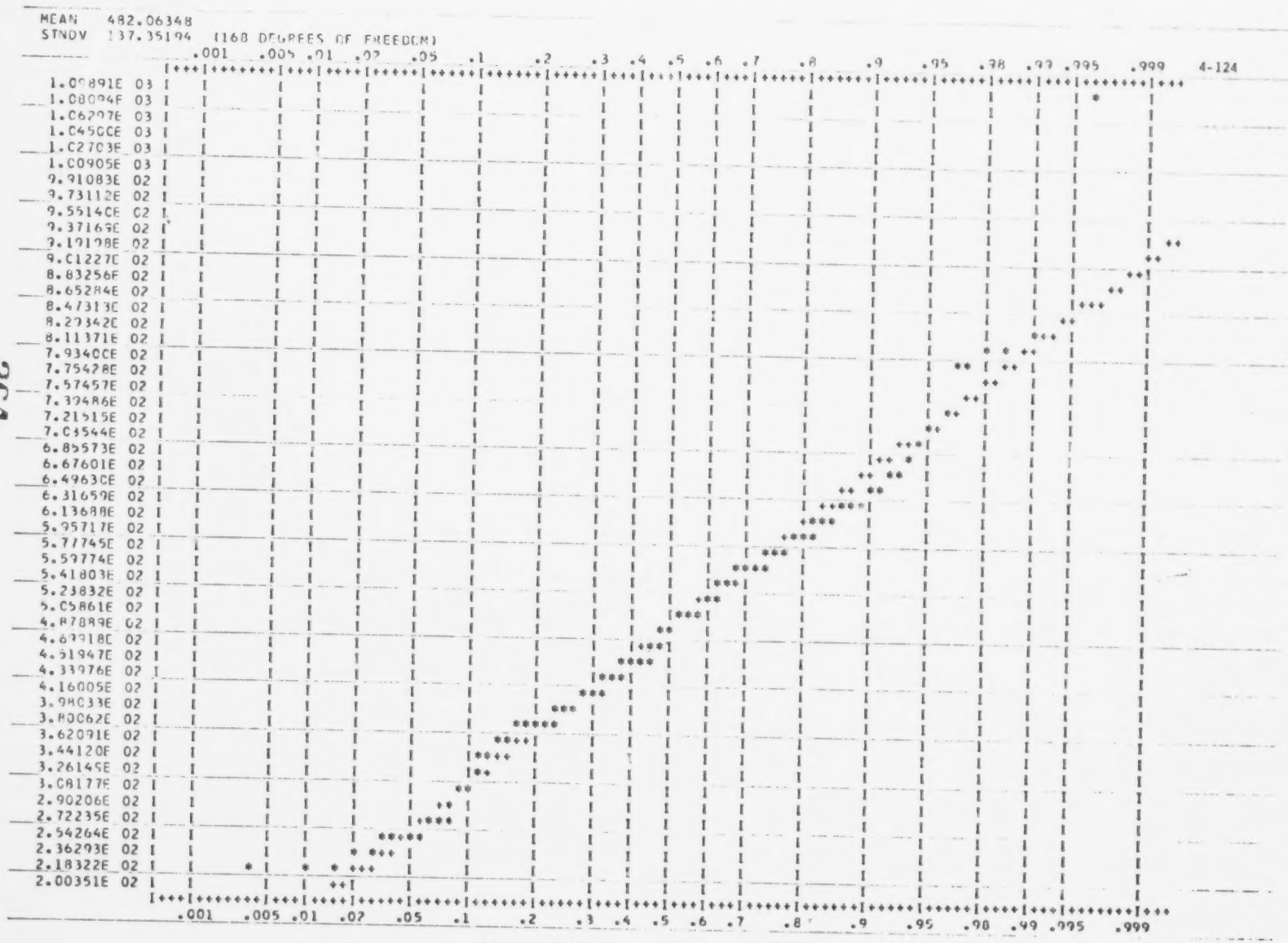
MEAN 7.57322
STNDV 8.72564 (168 DEGREES OF FREEDOM)



DISTRIBUTION OF EMISSIONS - CHICAGO
HC

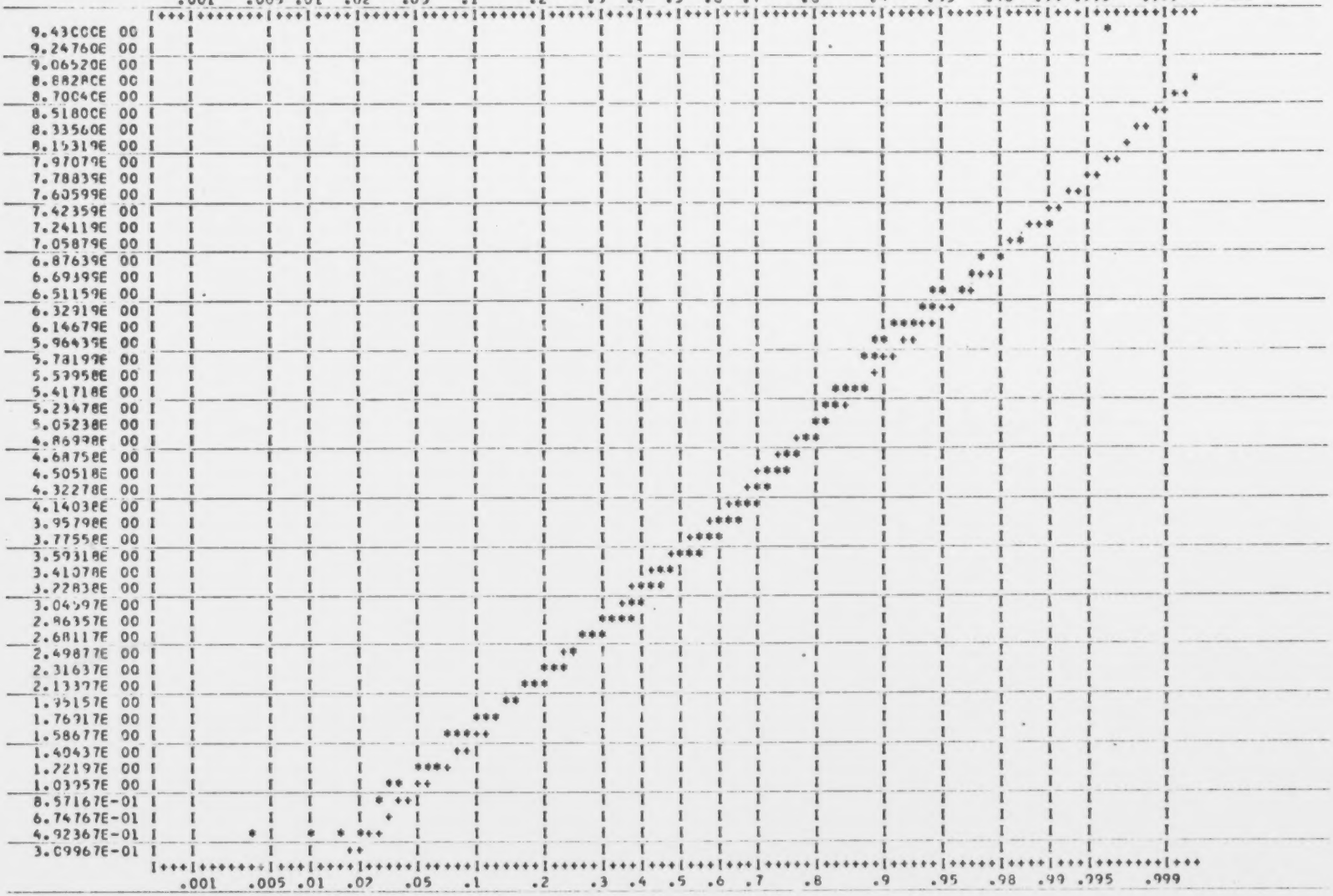


DISTRIBUTION OF EMISSIONS - CHICAGO
CO



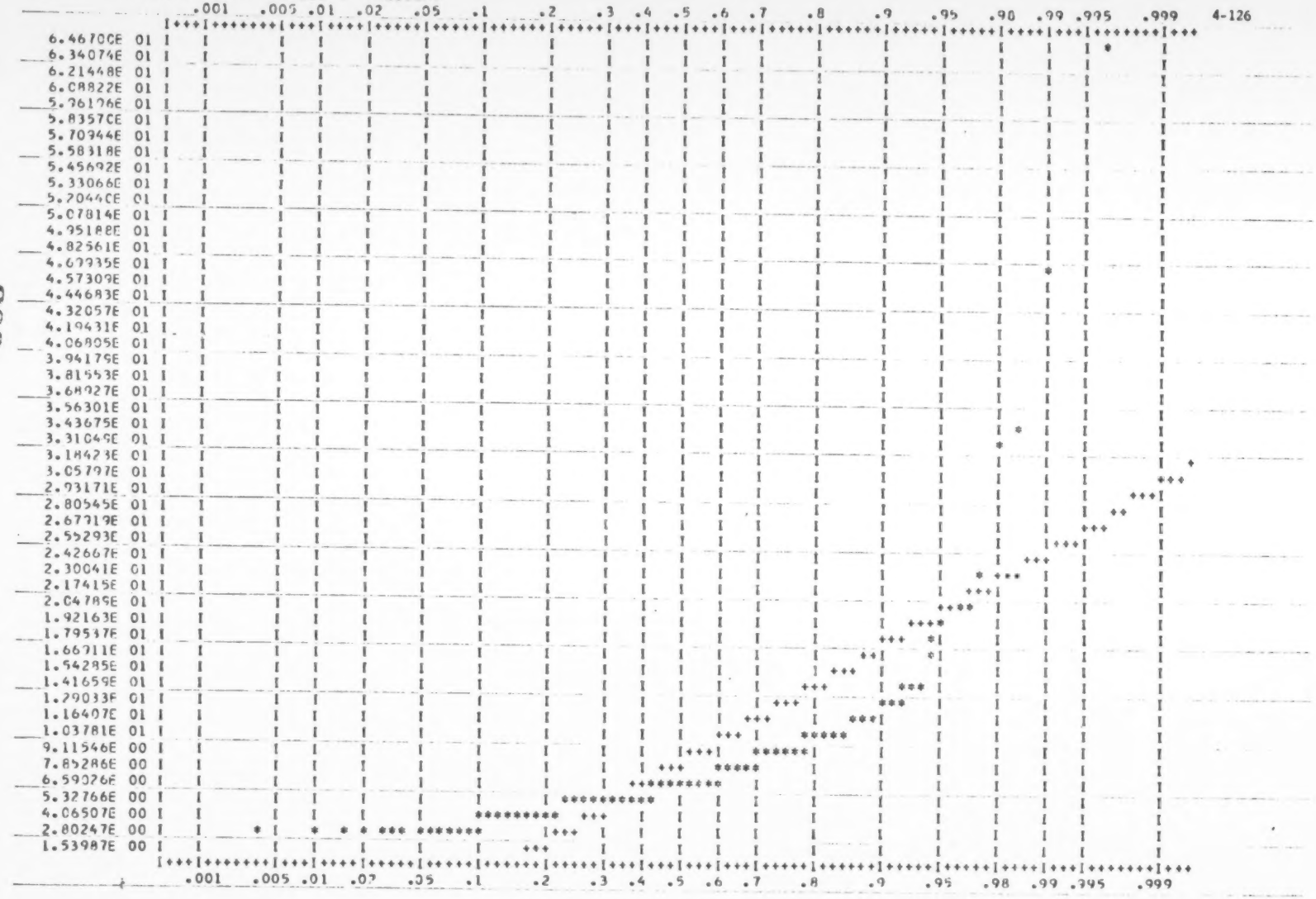
DISTRIBUTION OF EMISSIONS - CHICAGO
CO2

MEAN 3.54046
STNDV 1.58669 (168 DEGREES OF FREEDOM)

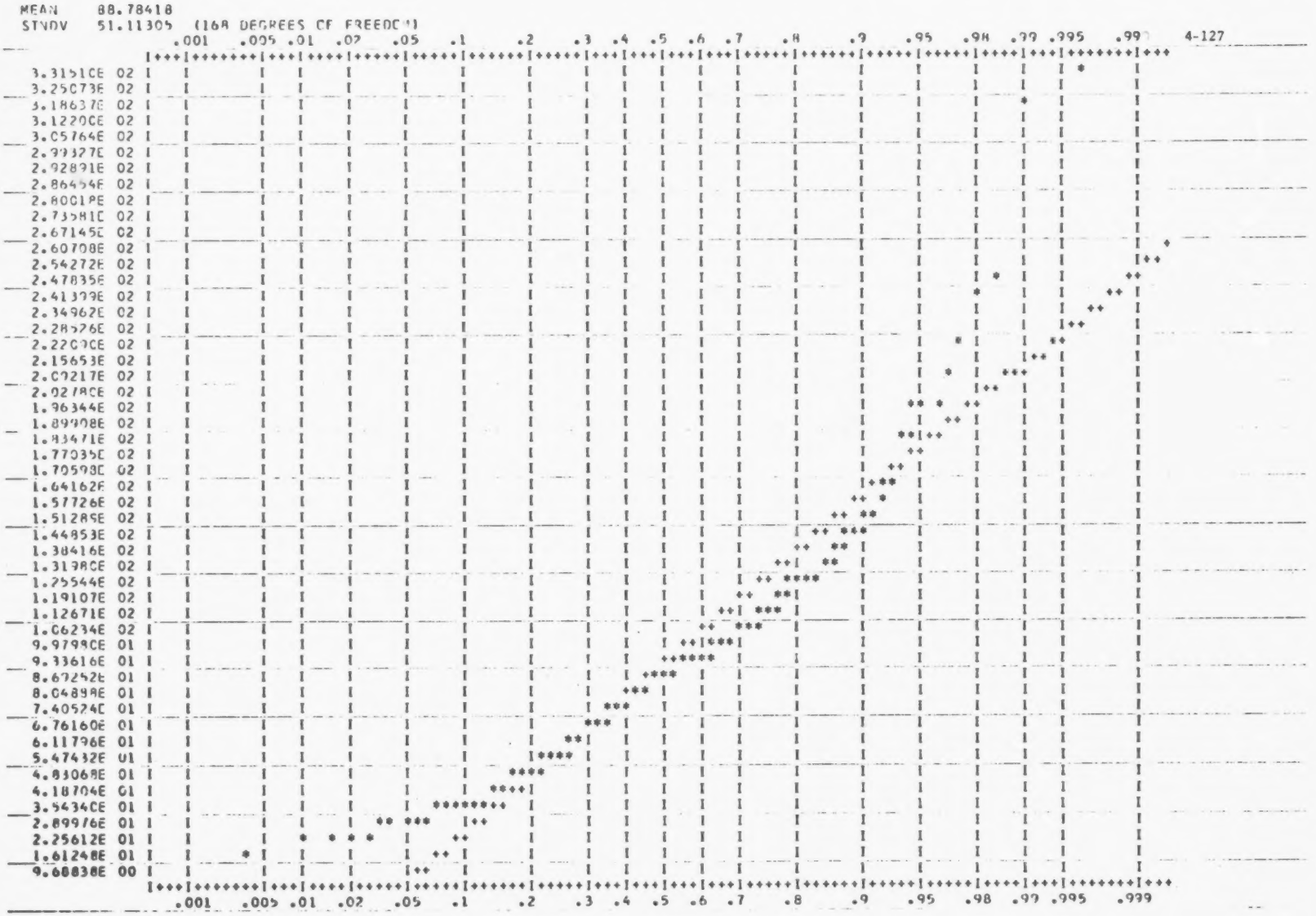


DISTRIBUTION OF EMISSIONS - CHICAGO
NOX

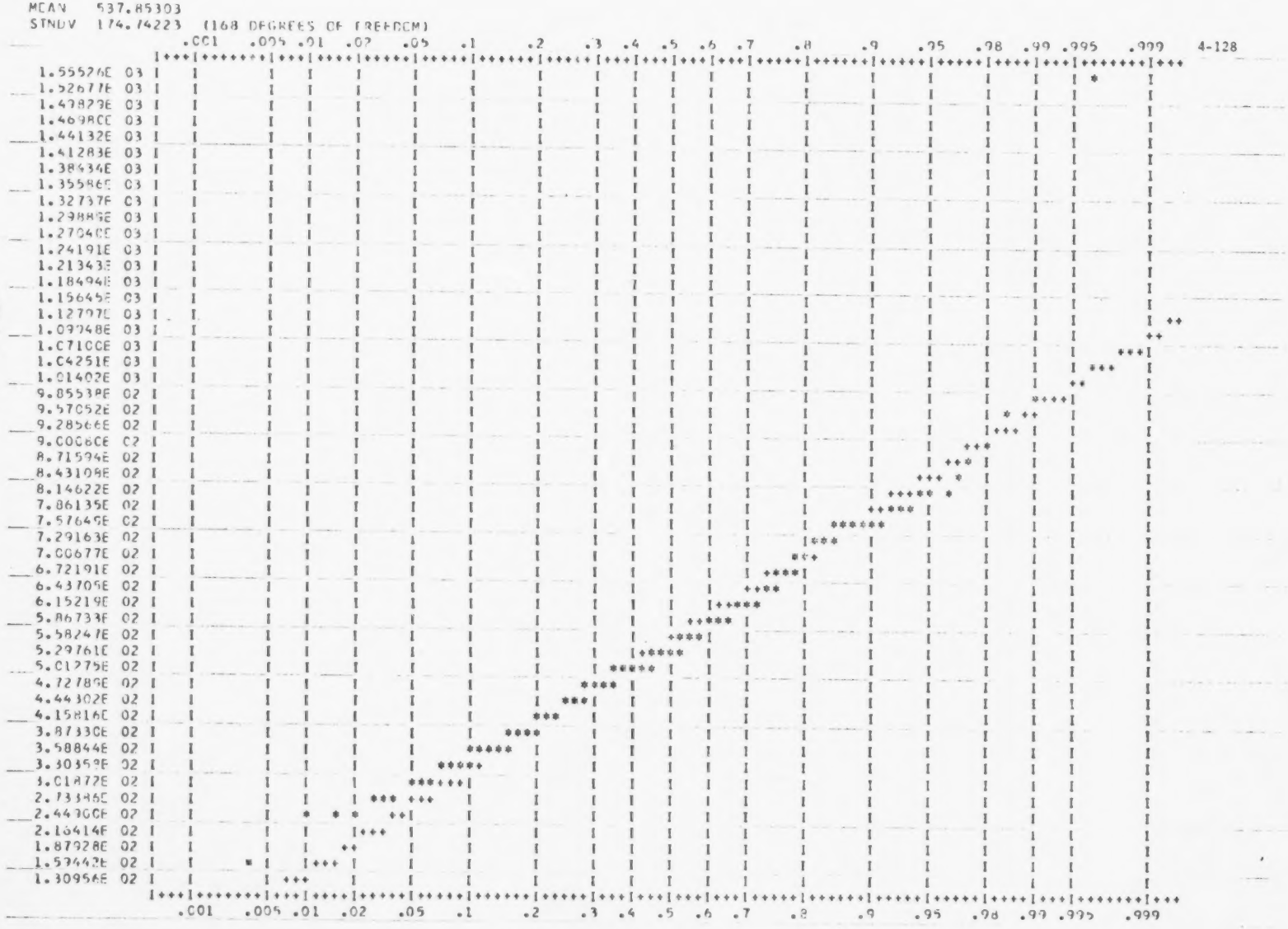
MEAN 7.55068
STNDV 7.05248 (168 DEGREES OF FREEDOM)



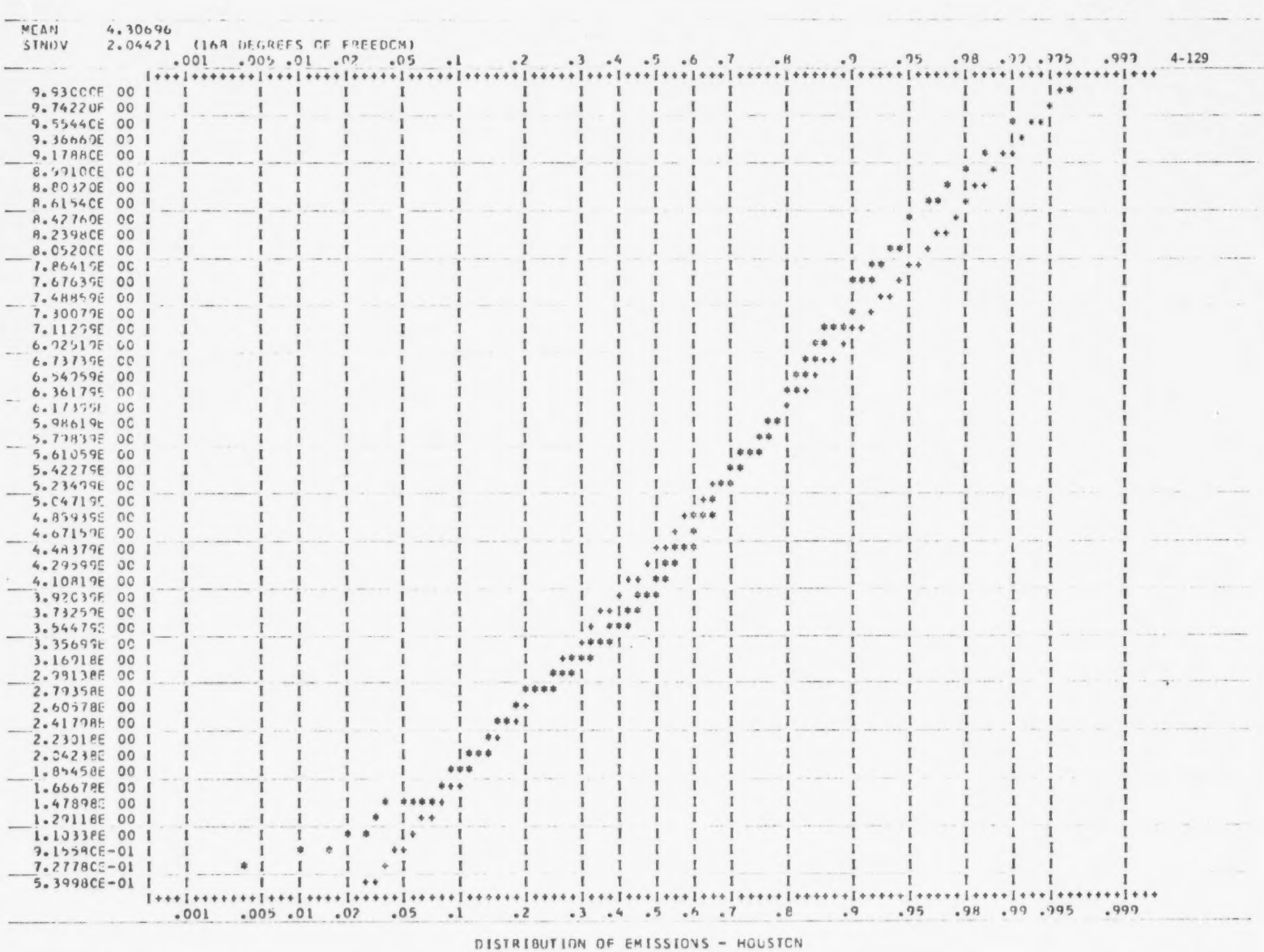
DISTRIBUTION OF EMISSIONS - HOUSTON
HC


MEAN 88.78418
STNDV 51.11305 (168 DEGREES OF FREEDOM)
4-127
.001 .005 .01 .02 .05 .1 .2 .3 .4 .5 .6 .7 .8 .9 .95 .98 .99 .995 .999
3.31510E 02
3.25073E 02
3.18637E 02
3.12200E 02
3.05764E 02
2.99327E 02
2.92891E 02
2.86454E 02
2.80018E 02
2.73581E 02
2.67145E 02
2.60708E 02
2.54272E 02
2.47835E 02
2.41399E 02
2.34962E 02
2.28526E 02
2.22090E 02
2.15653E 02
2.09217E 02
2.02780E 02
1.96344E 02
1.89908E 02
1.83471E 02
1.77035E 02
1.70598E 02
1.64162E 02
1.57726E 02
1.51289E 02
1.44853E 02
1.38416E 02
1.31980E 02
1.25544E 02
1.19107E 02
1.12671E 02
1.06234E 02
9.97980E 01
9.33616E 01
8.69252E 01
8.04889E 01
7.40524E 01
6.76160E 01
6.11796E 01
5.47432E 01
4.83069E 01
4.18704E 01
3.54340E 01
2.89976E 01
2.25612E 01
1.61248E 01
9.68838E 00
DISTRIBUTION OF EMISSIONS - HOUSTON
CO

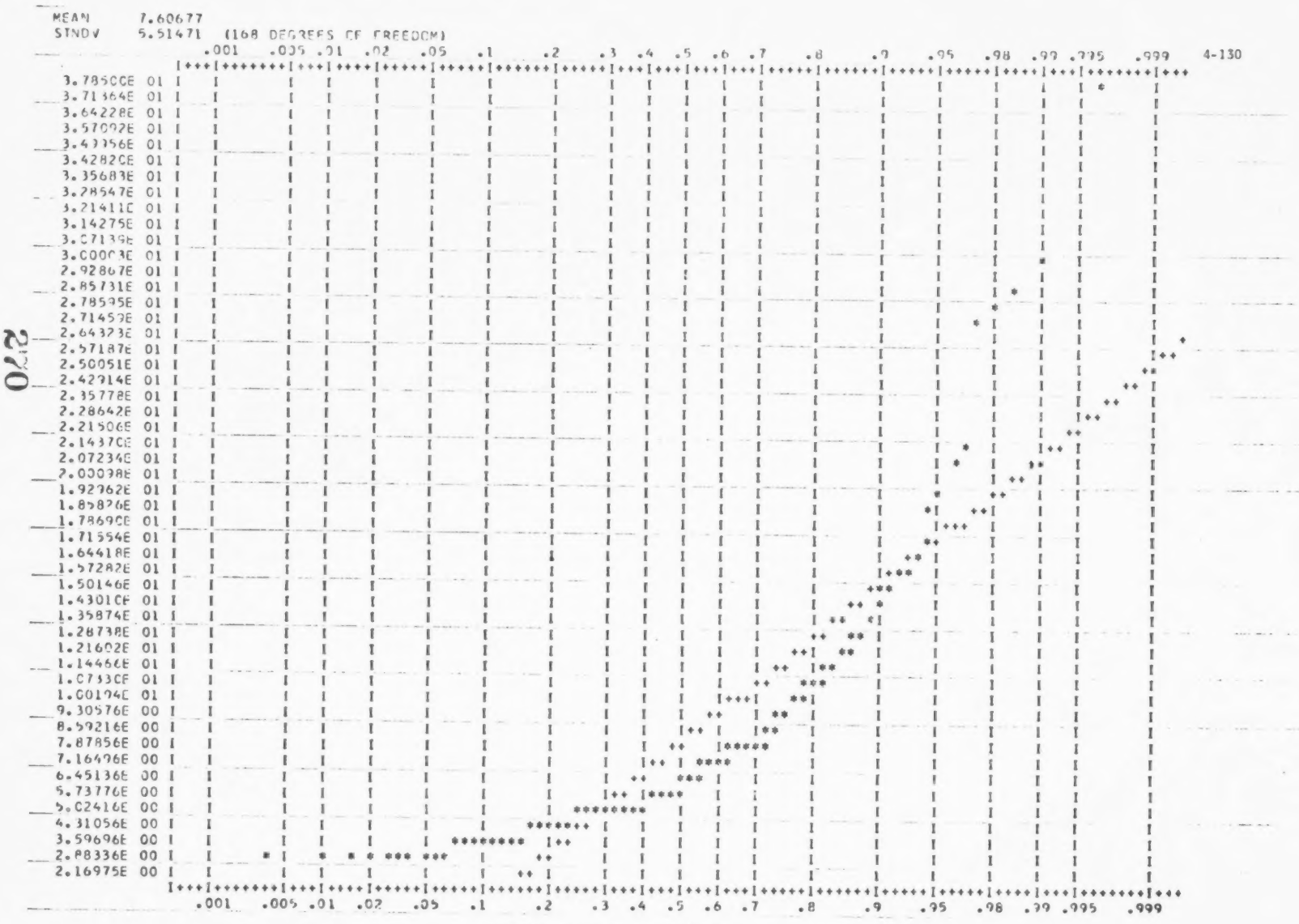
MEAN 537.85303
STNDV 174.74223 (168 DEGREES OF FREEDOM)



DISTRIBUTION OF EMISSIONS - HOUSTON
CO2

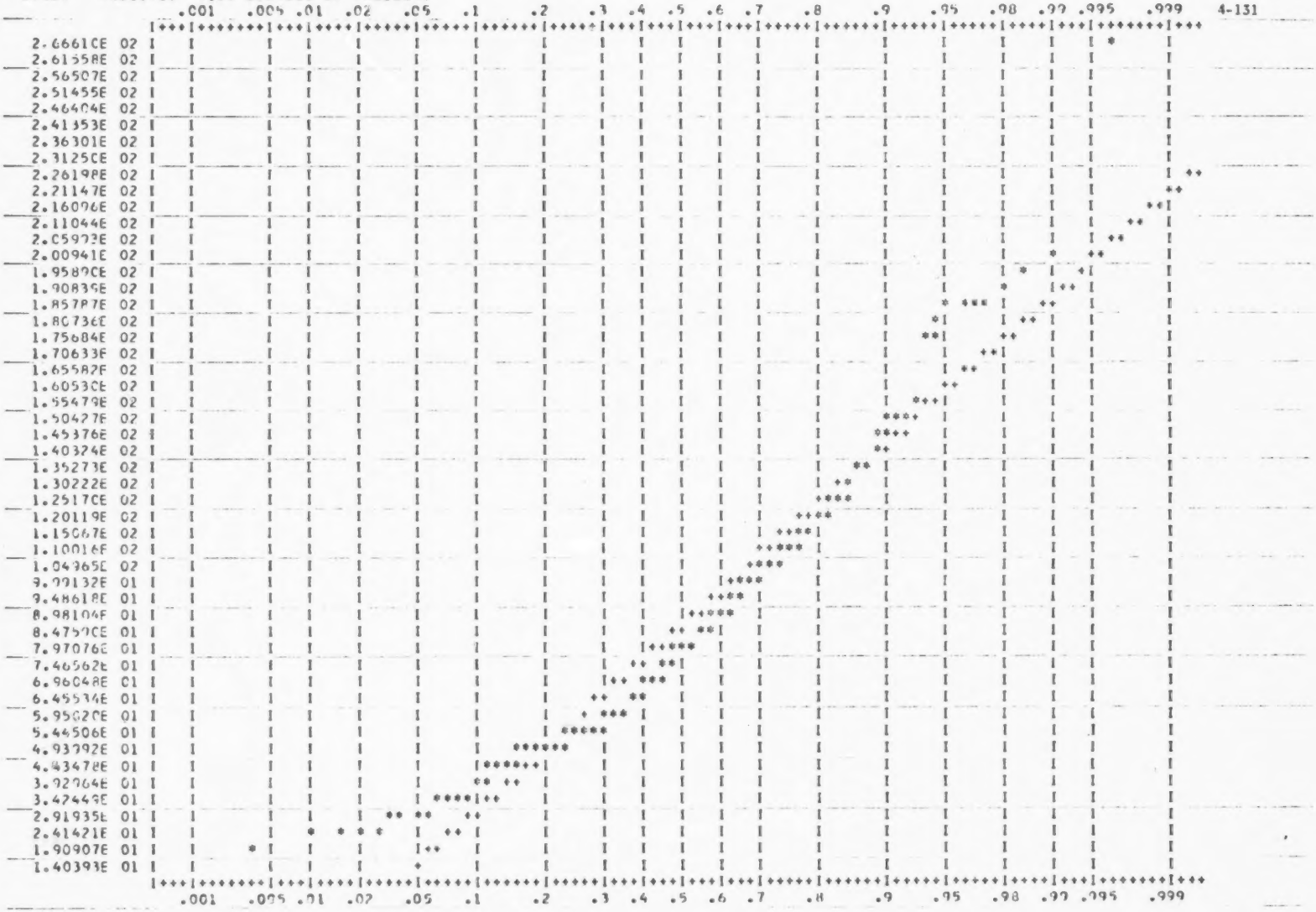


DISTRIBUTION OF EMISSIONS - HOUSTON
NOX

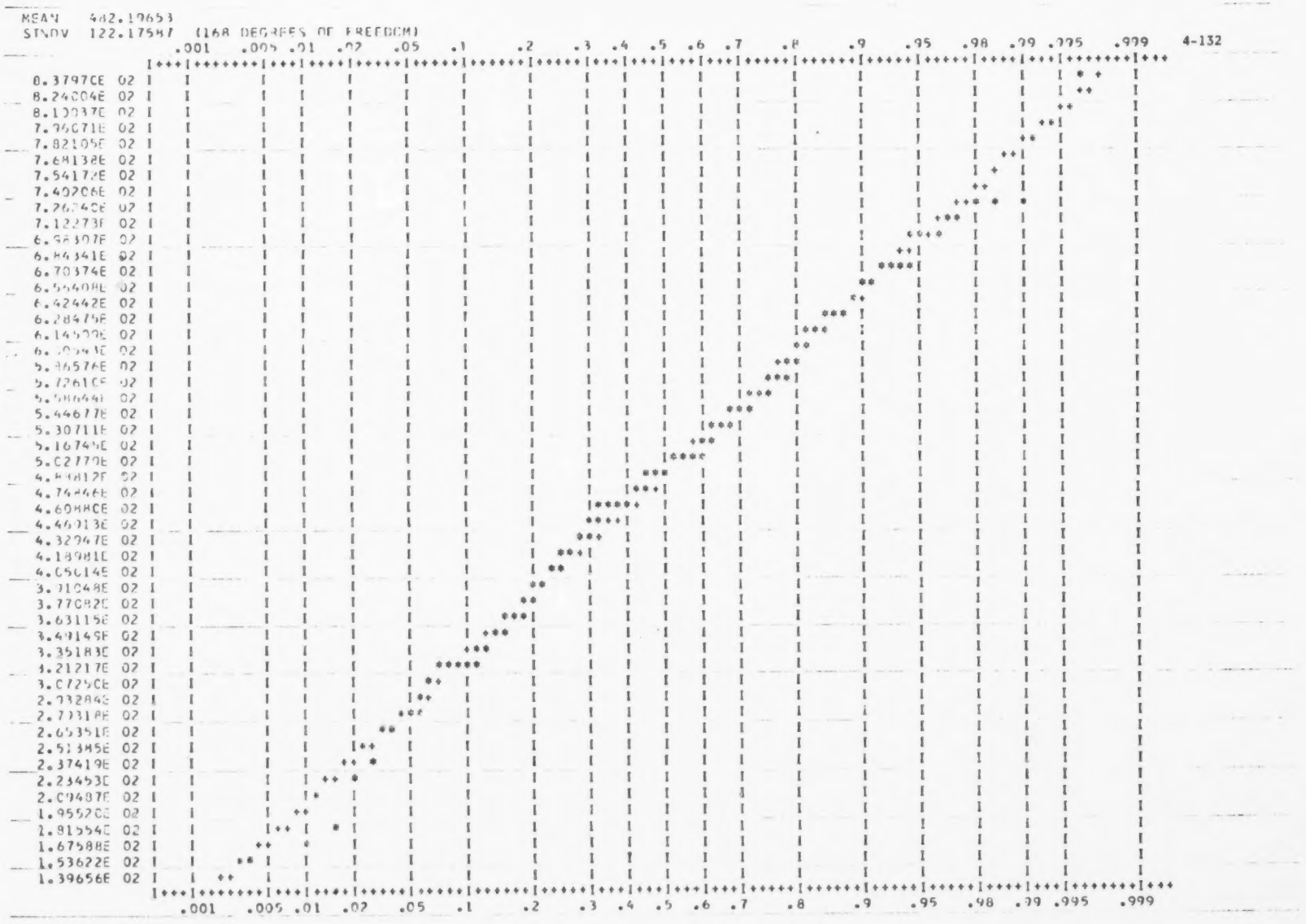


DISTRIBUTION OF EMISSIONS - ST. LOUIS
HC

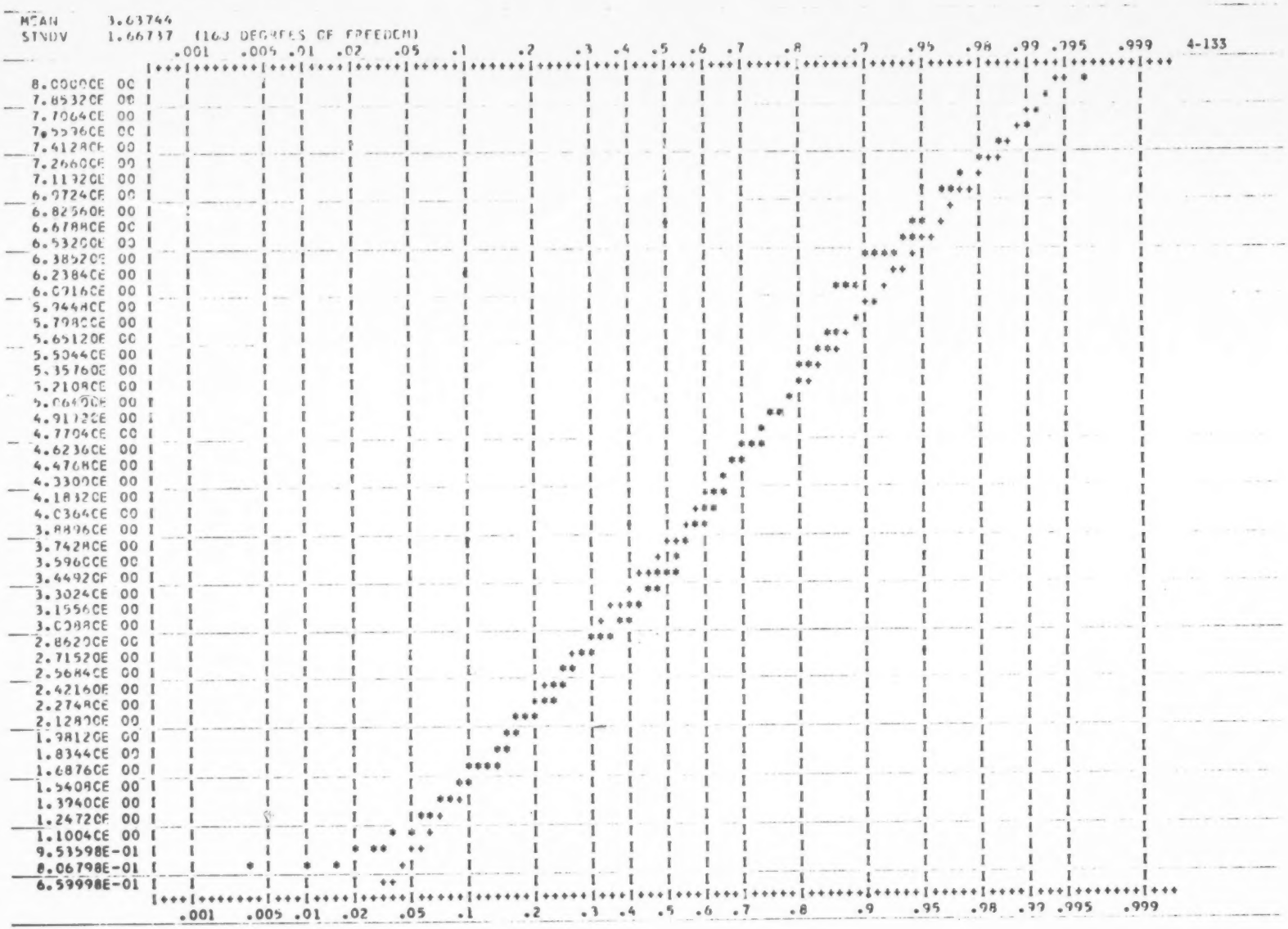
MEAN 83.74376
STNDV 43.11713 (168 DEGREES OF FREEDOM)



DISTRIBUTION OF EMISSIONS - ST. LOUIS
CO

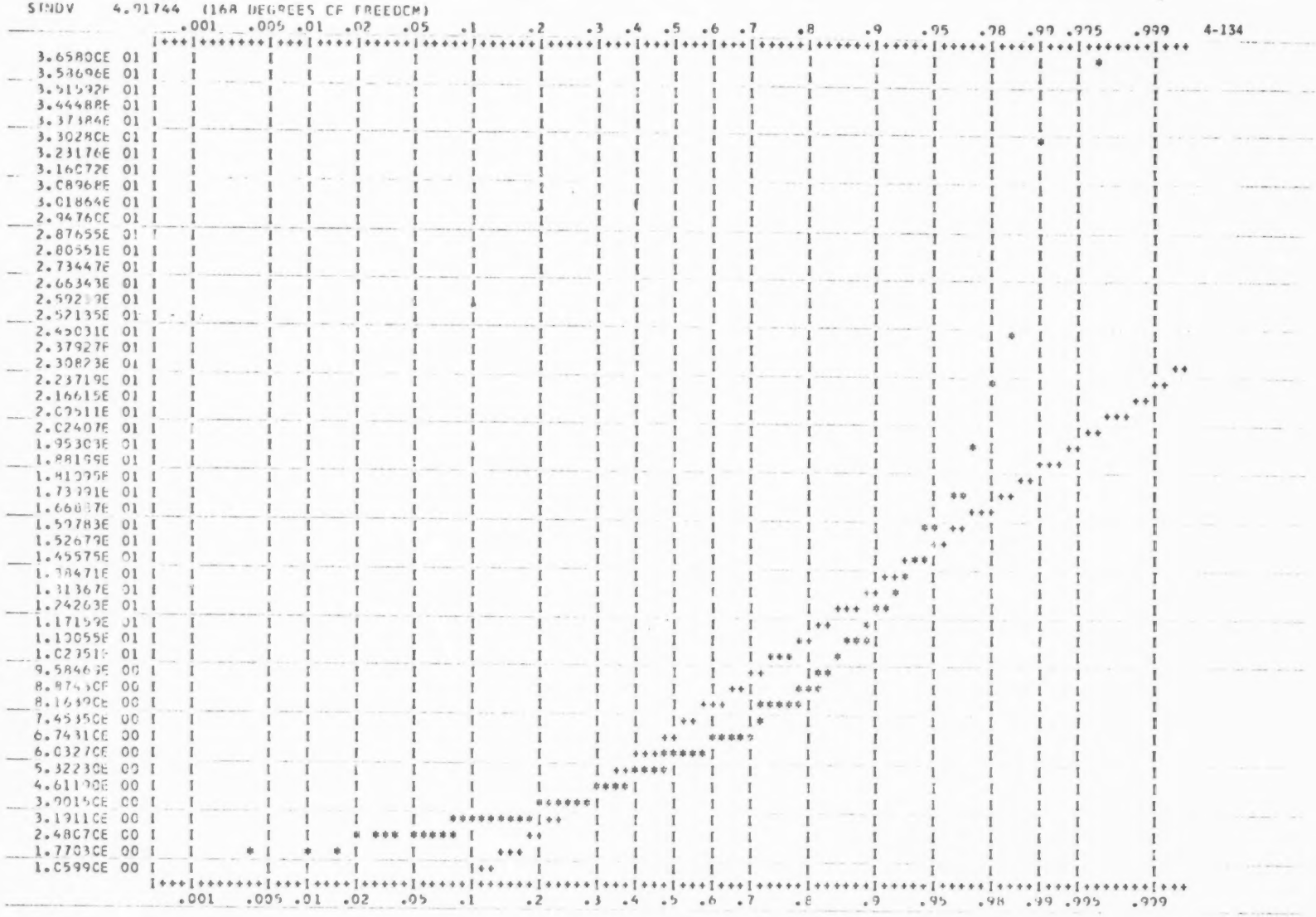


DISTRIBUTION OF EMISSIONS - ST. LOUIS
CO



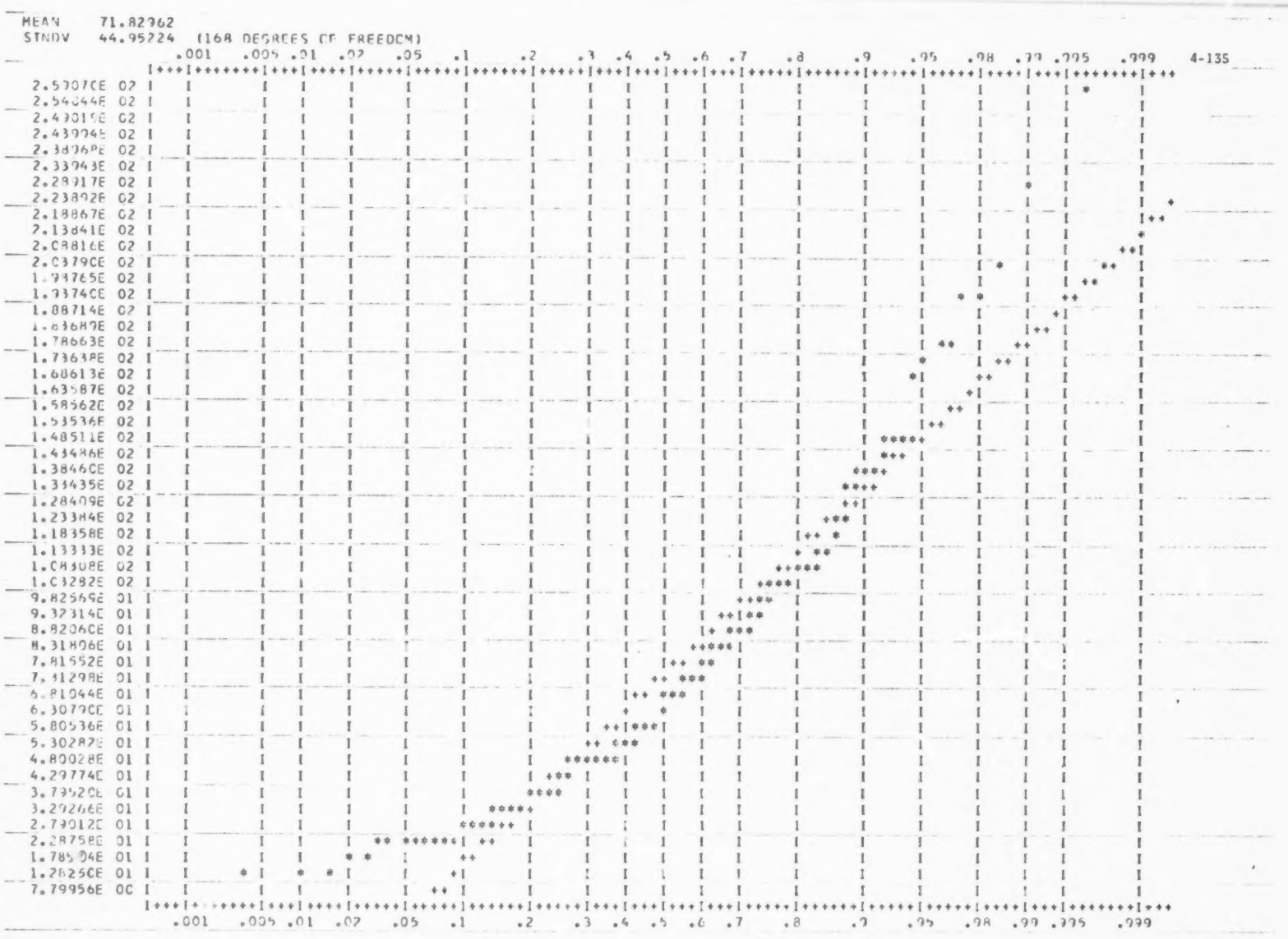
DISTRIBUTION OF EMISSIONS - ST. LOUIS
NOX

MEAN 6.58931
STNDV 4.91744 (168 DEGREES OF FREEDOM)

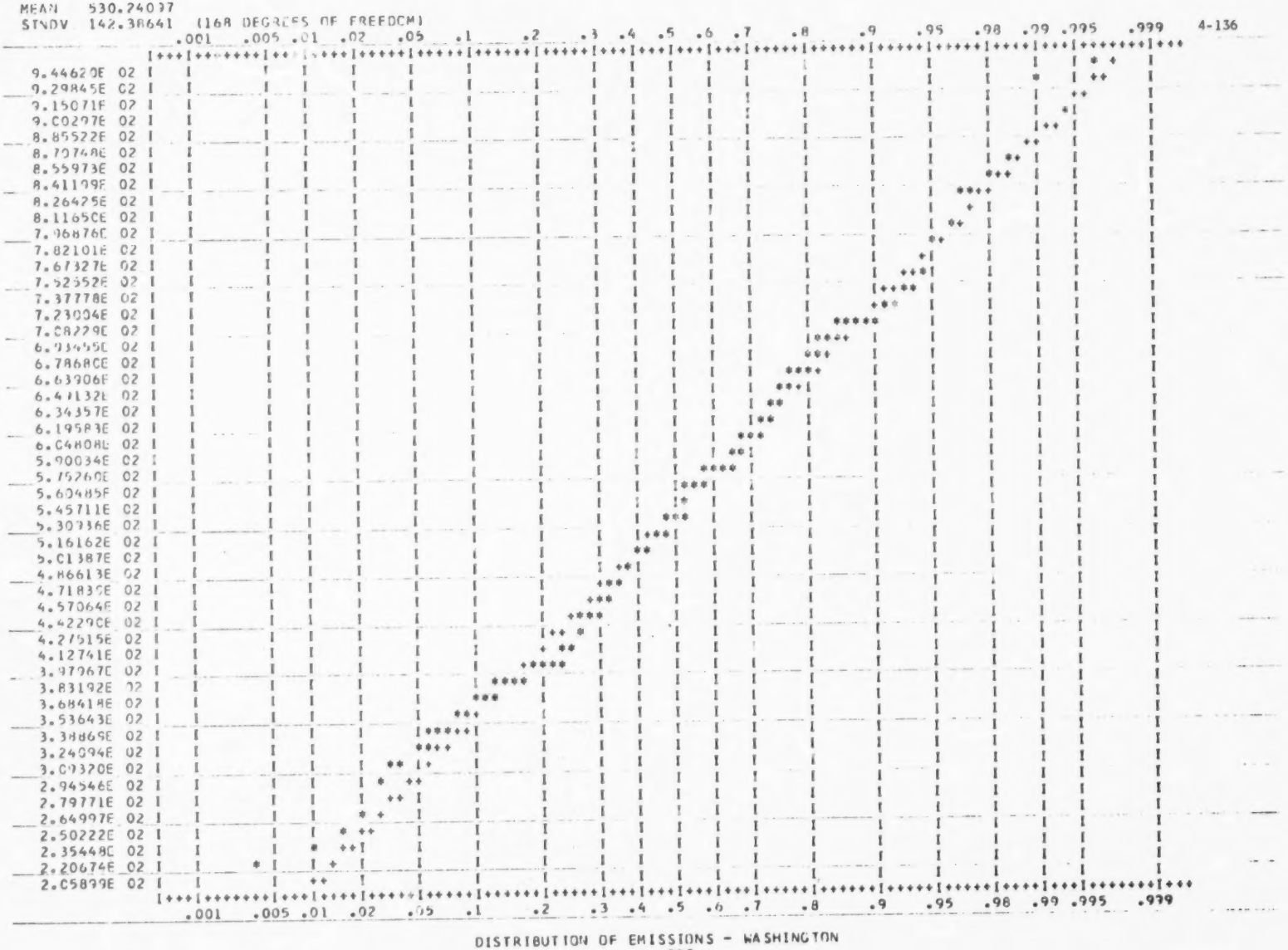


DISTRIBUTION OF EMISSIONS - WASHINGTON
HC

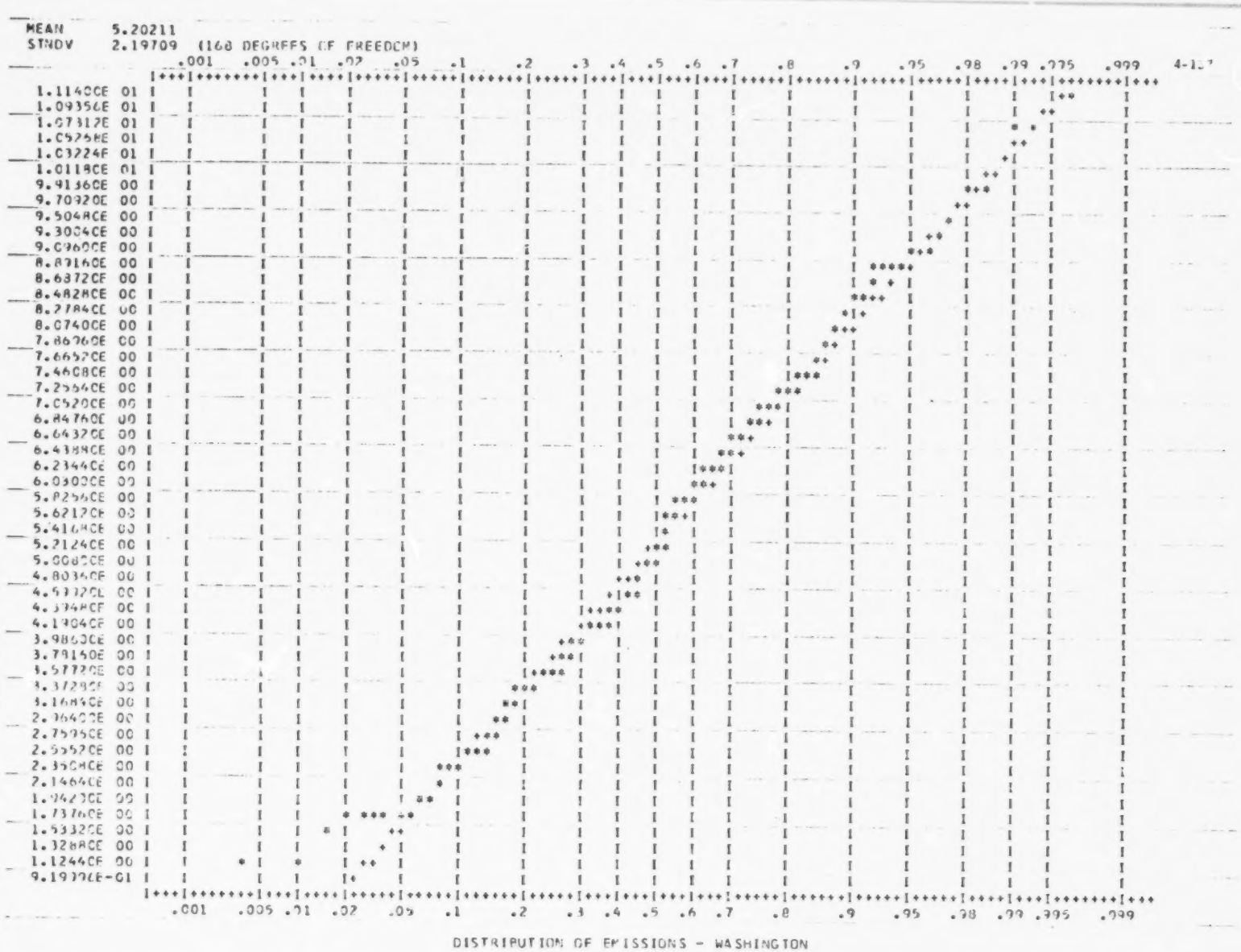
MEAN 71.82962
STNDV 44.95224 (168 DEGREES OF FREEDOM)



DISTRIBUTION OF EMISSIONS - WASHINGTON
CO



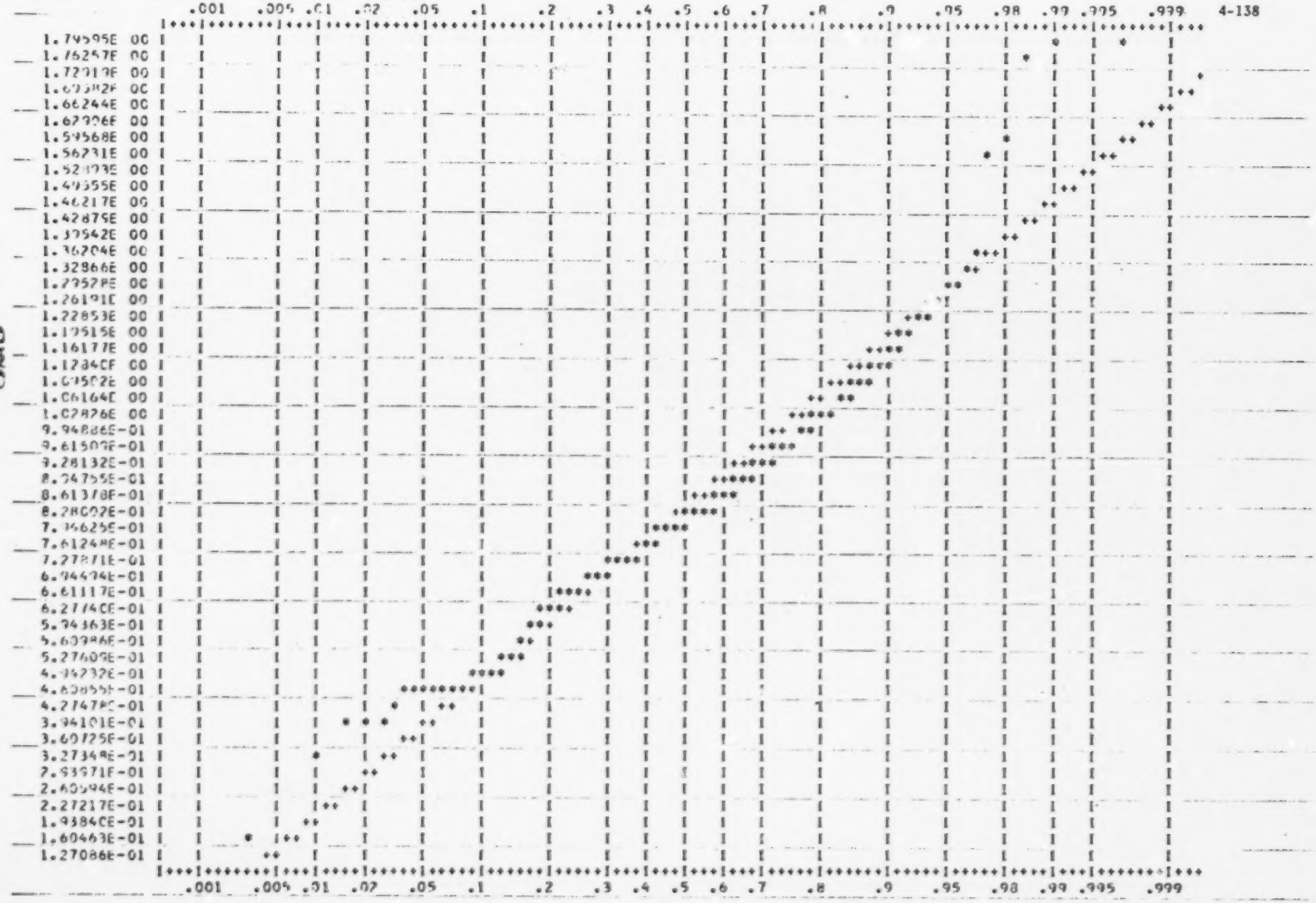
DISTRIBUTION OF EMISSIONS - WASHINGTON
CO2



DISTRIBUTION OF EMISSIONS - WASHINGTON
NOX

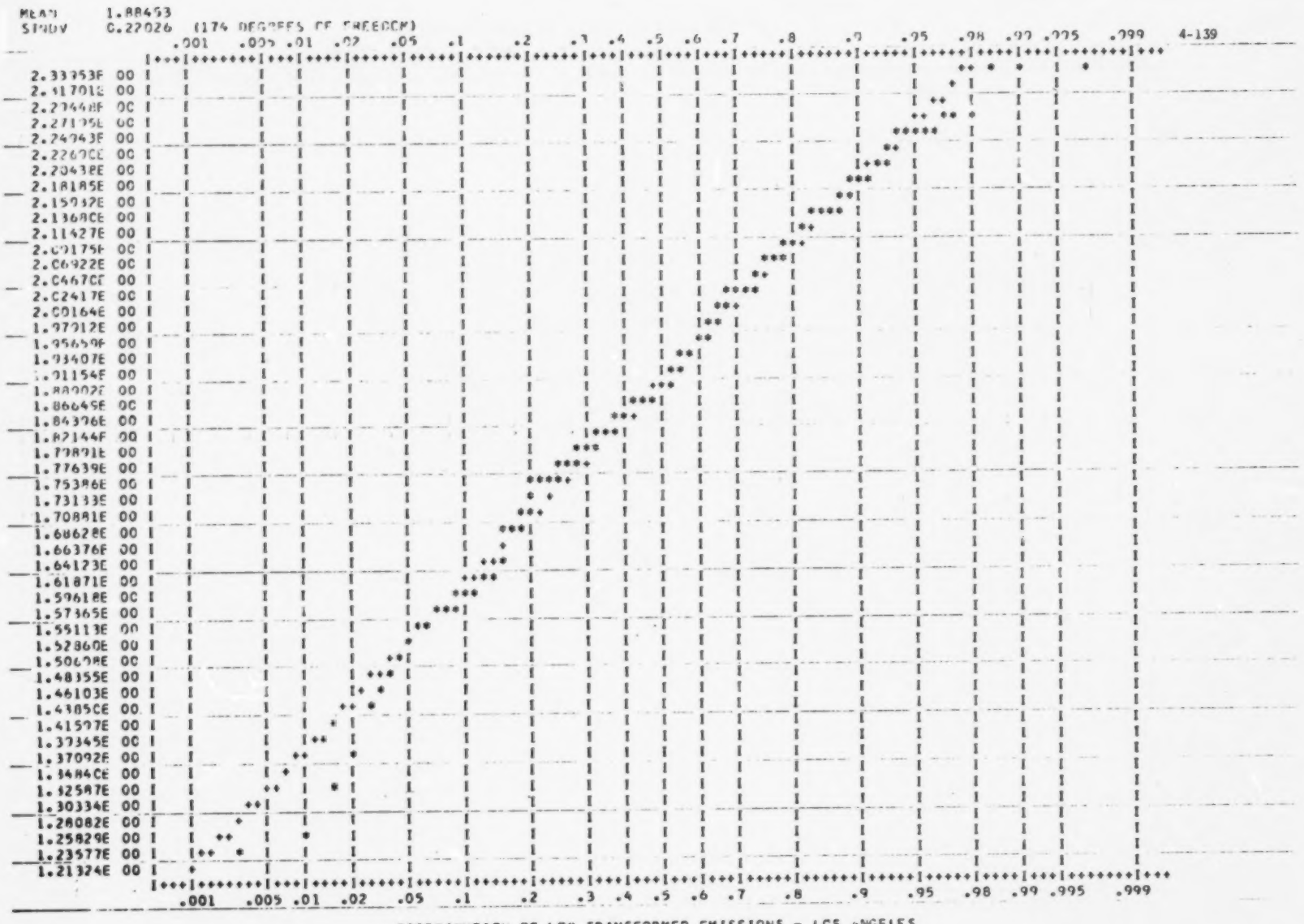
227

MEAN 0.81594
STNDV 0.26777 (174 DEGREES OF FREEDOM)

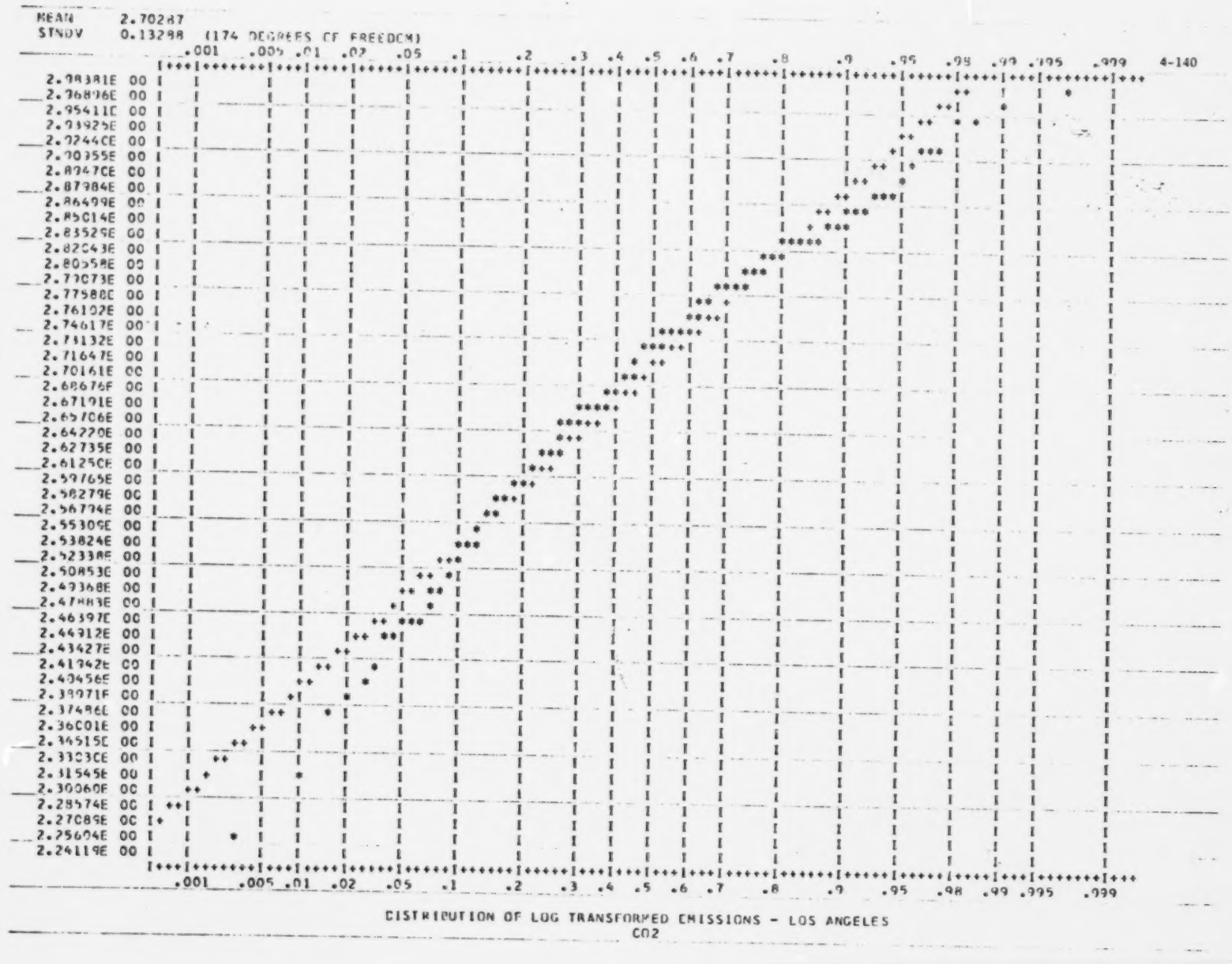


DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - LOS ANGELES
HC

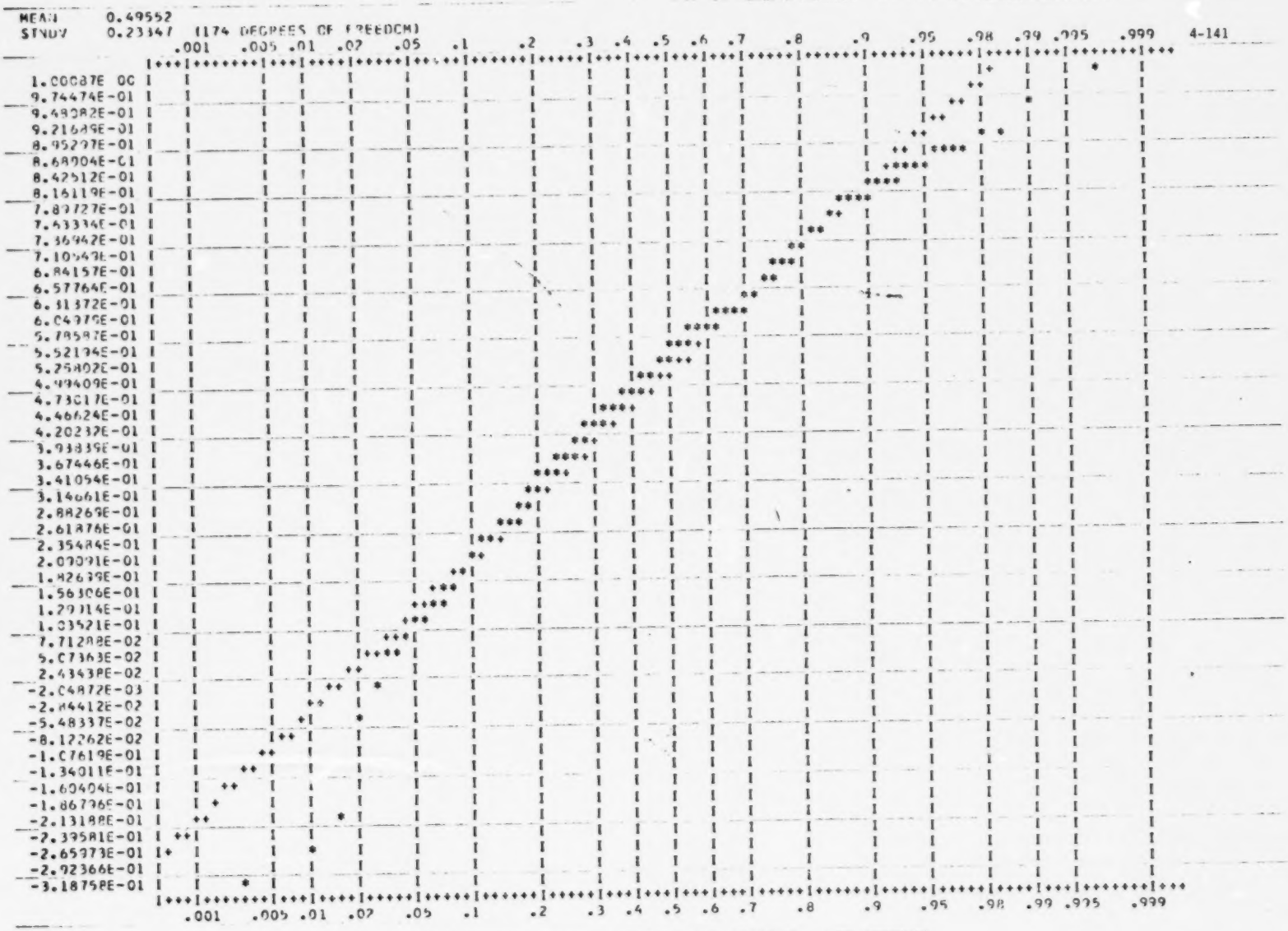
4-138



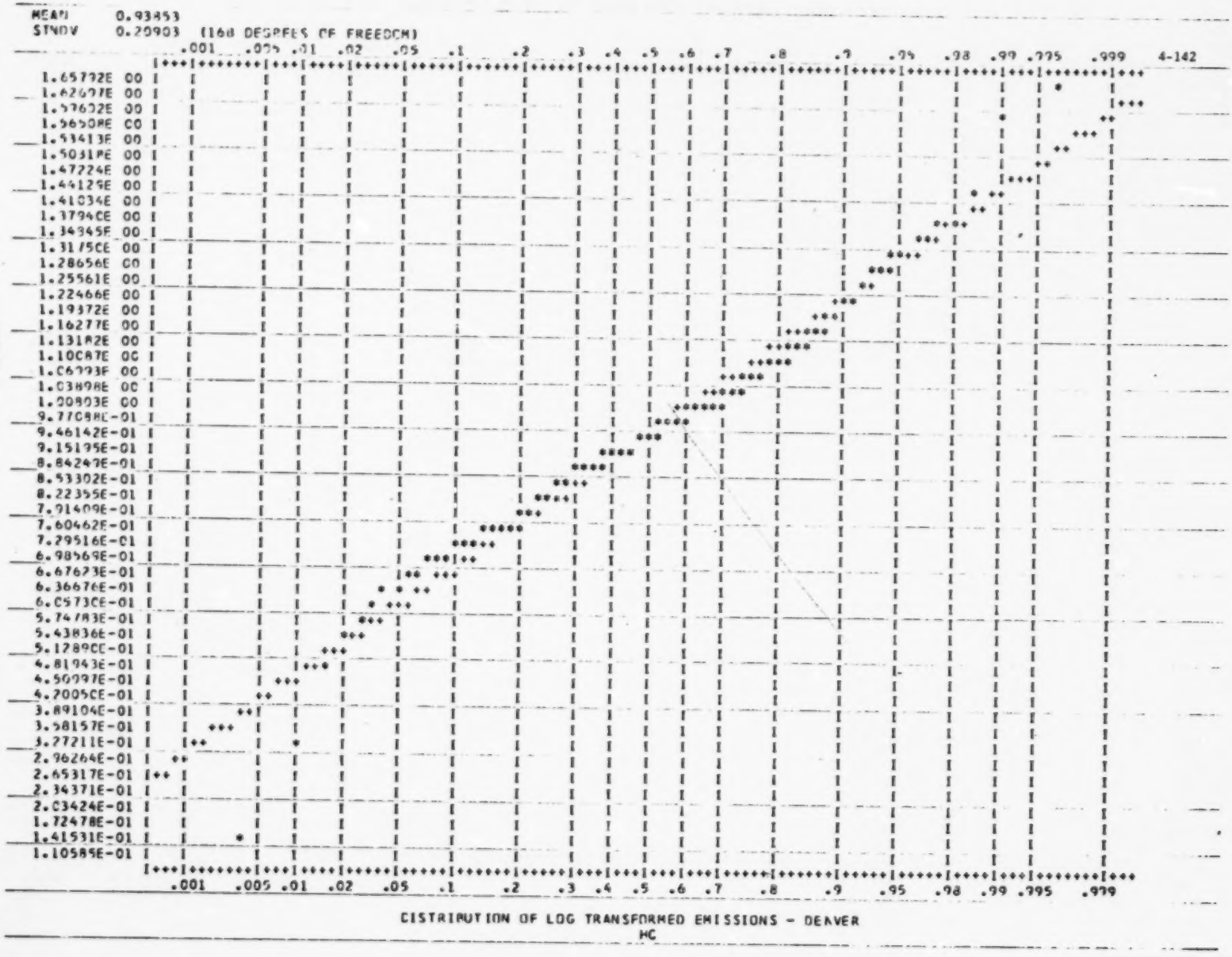
DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - LOS ANGELES
CO



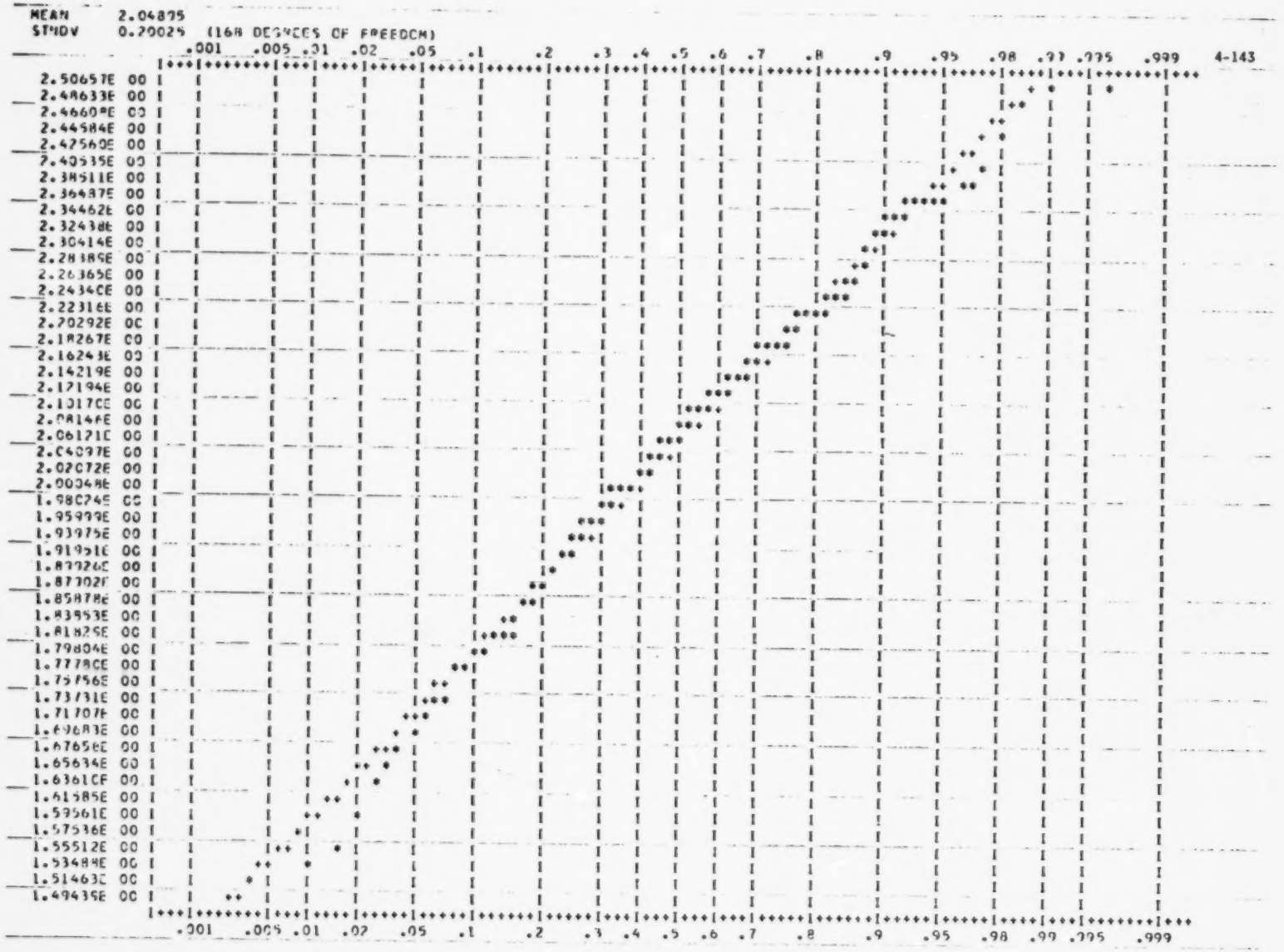
DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - LOS ANGELES
CO2



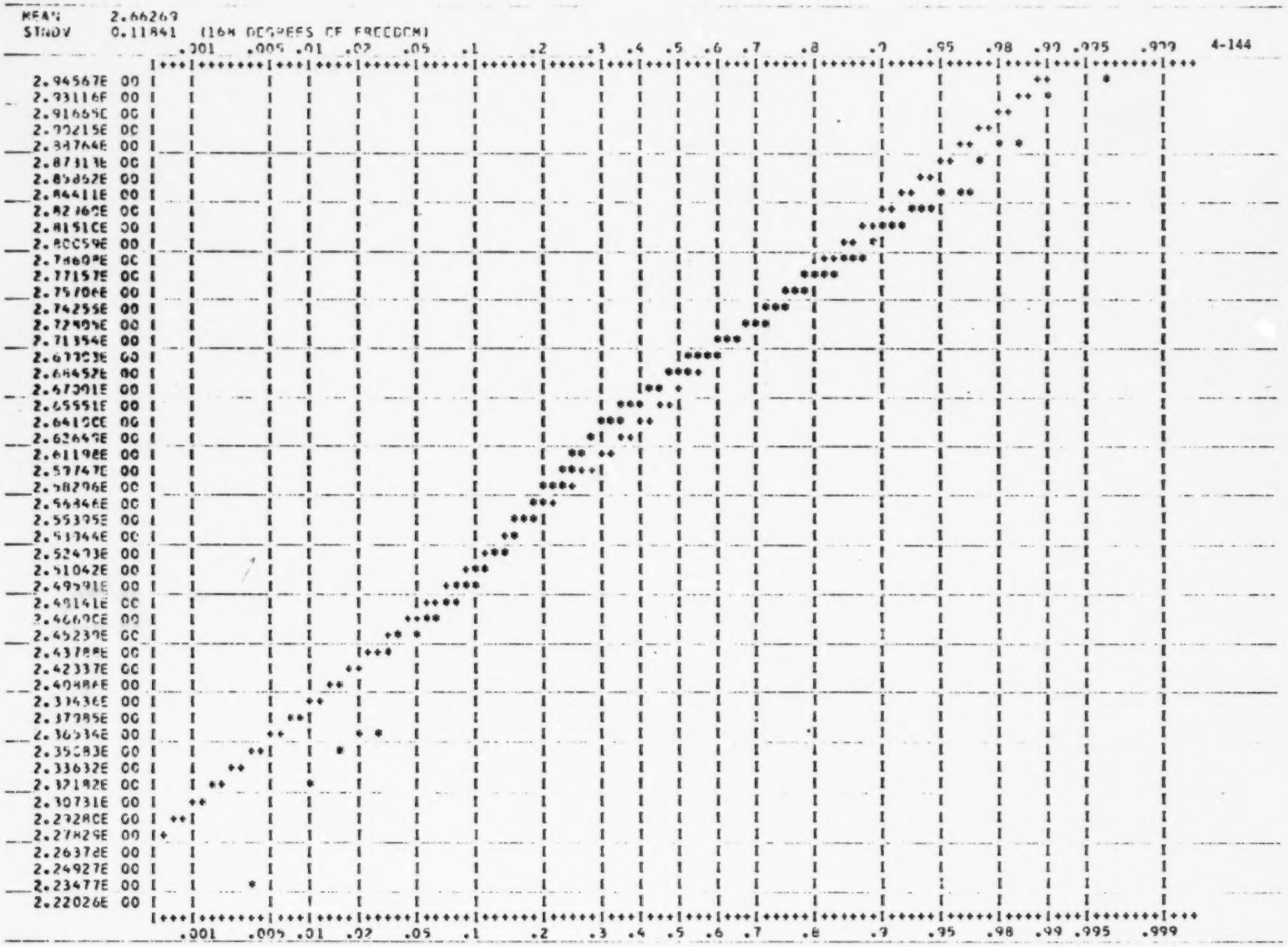
DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - LOS ANGELES
NOX



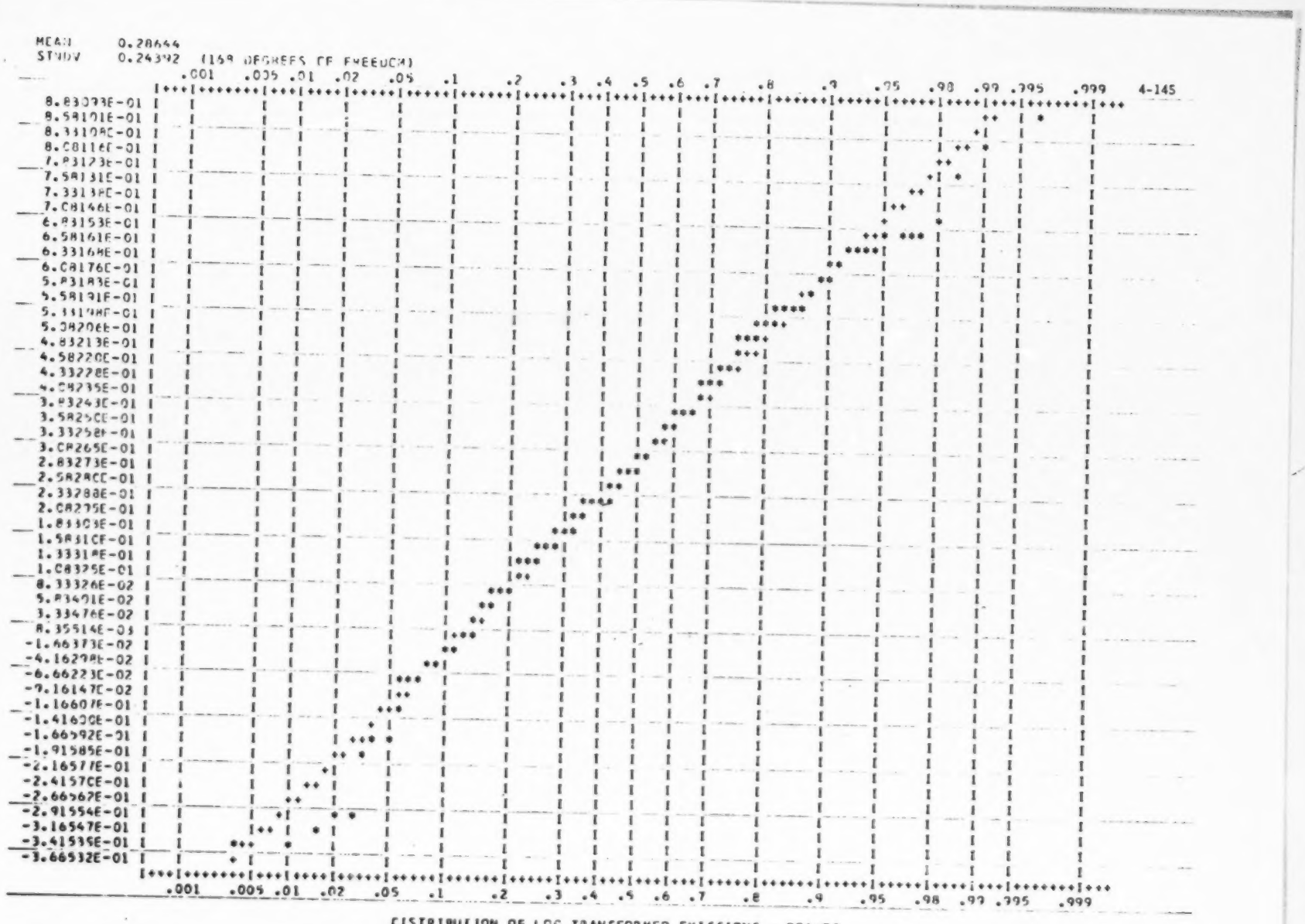
DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - DENVER
HC



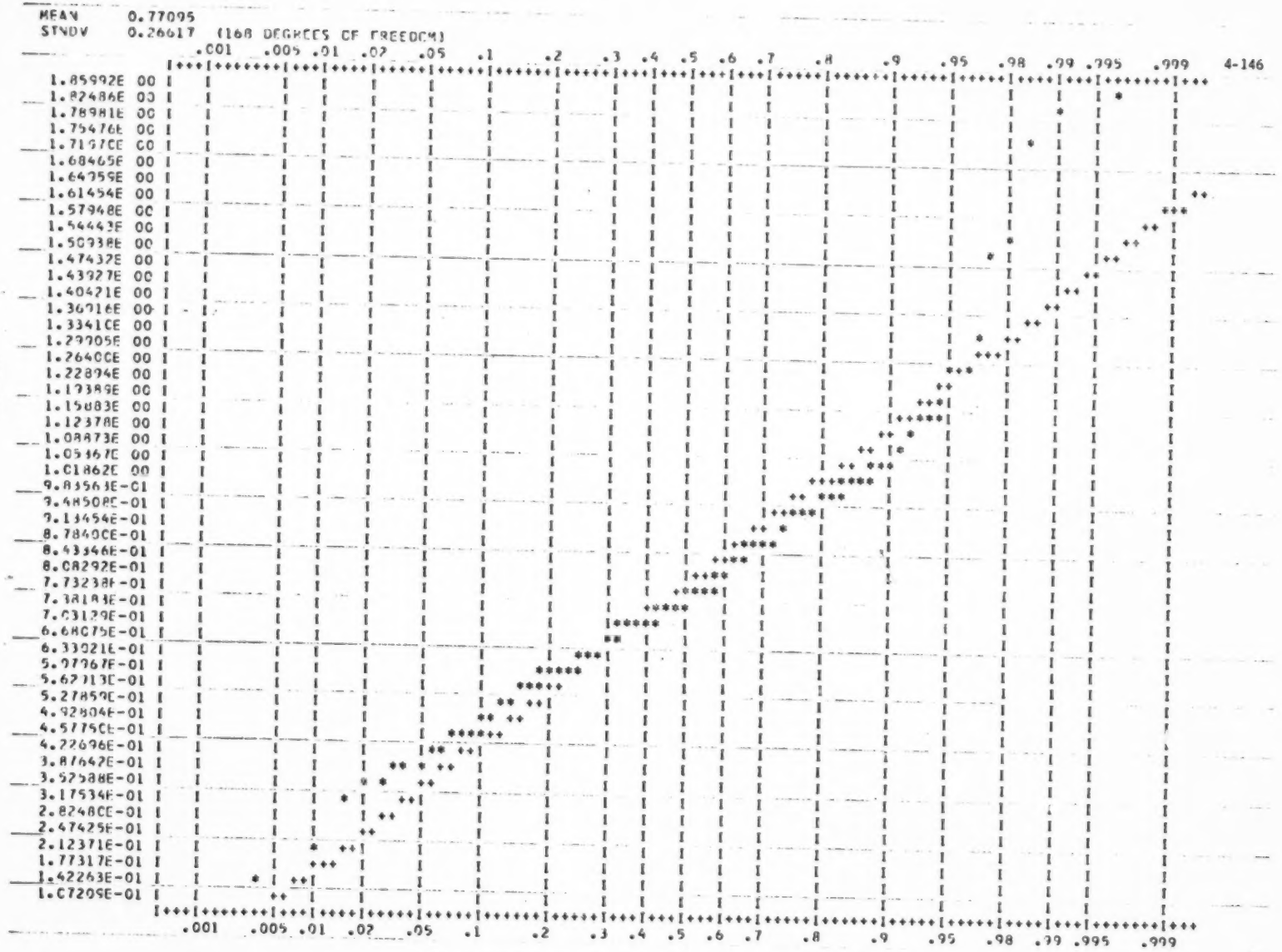
DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - DENVER
CO



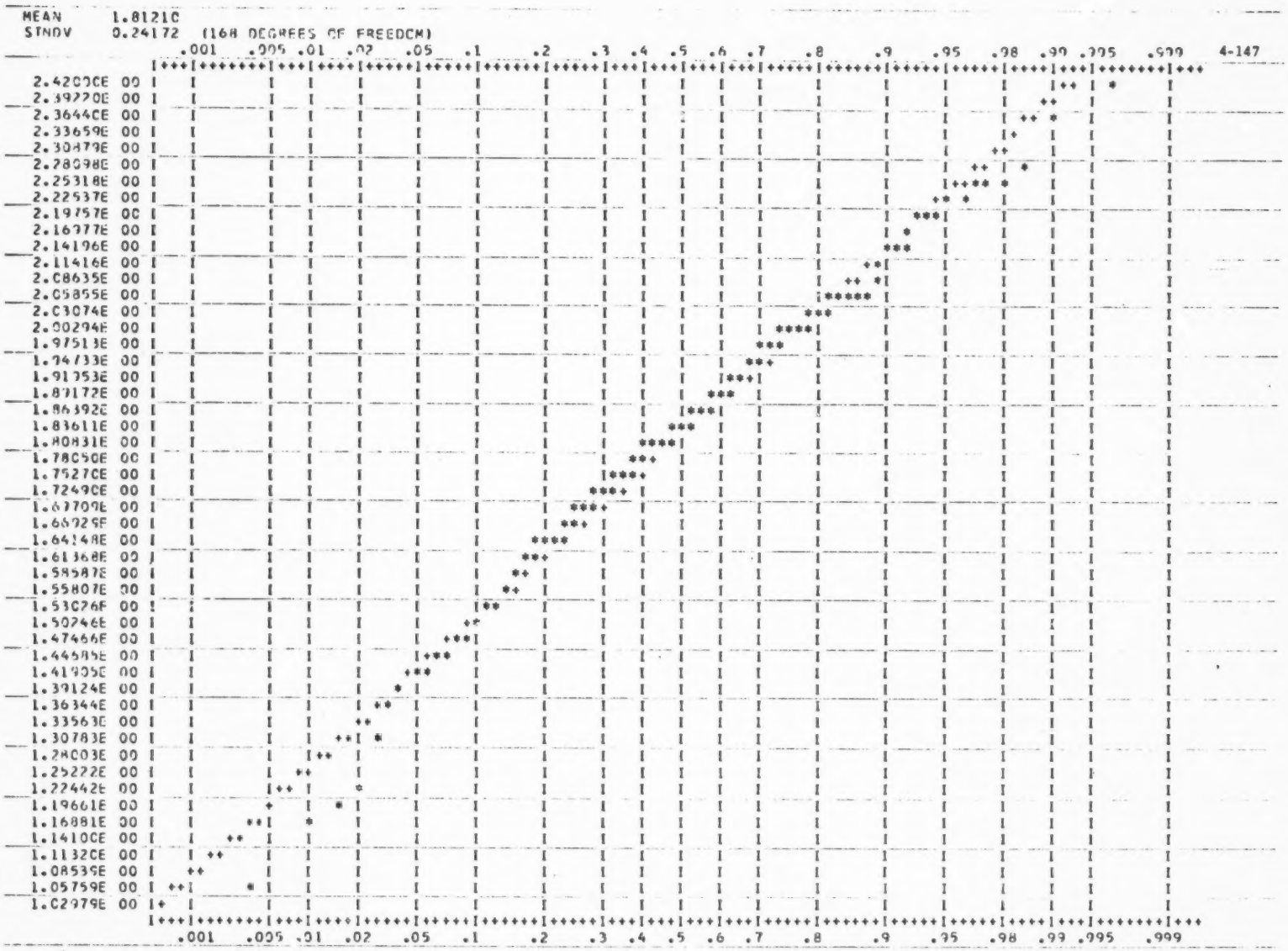
DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - DENVER
CO2



DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - DENVER
NOX

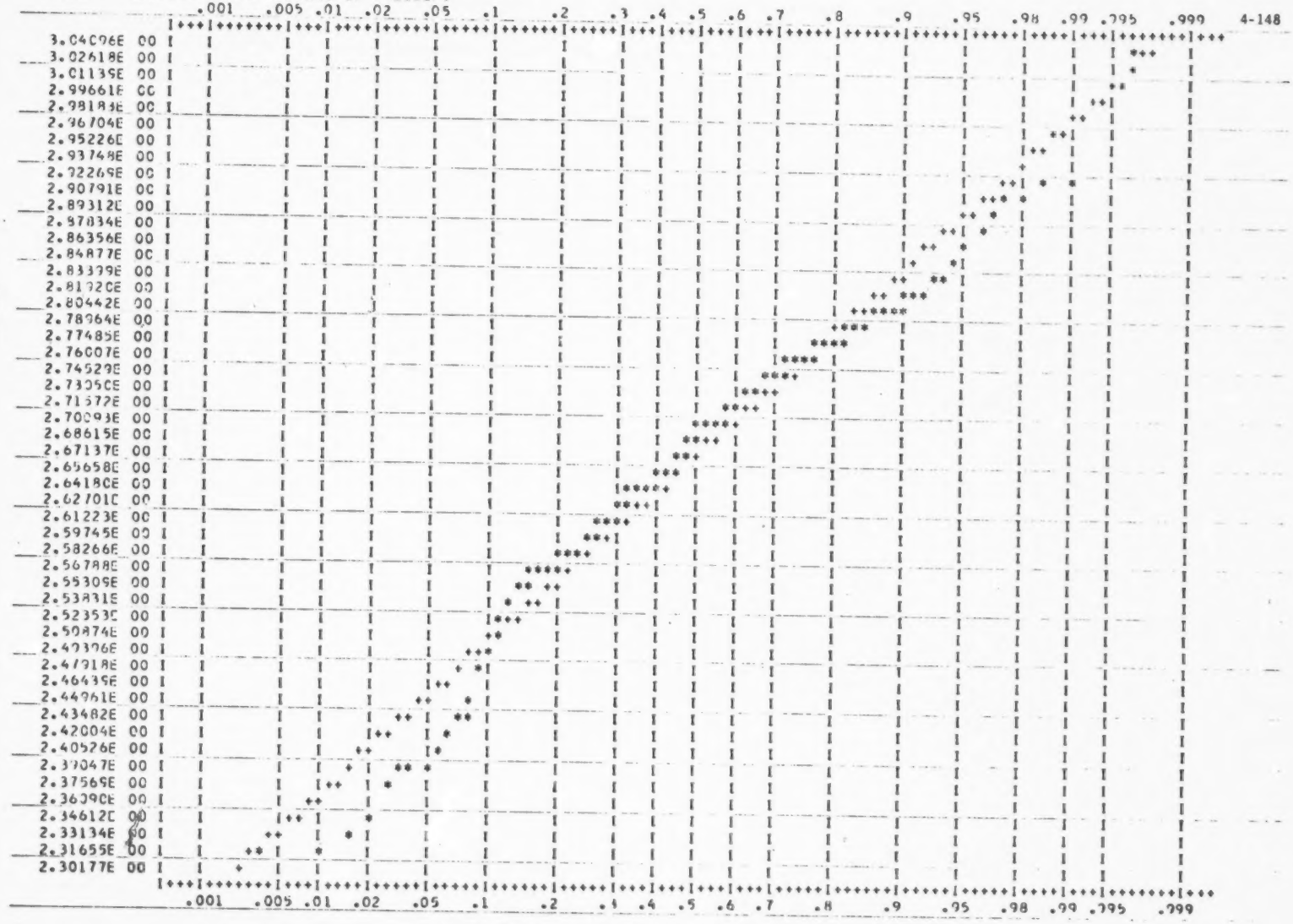


DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - CHICAGO
HC

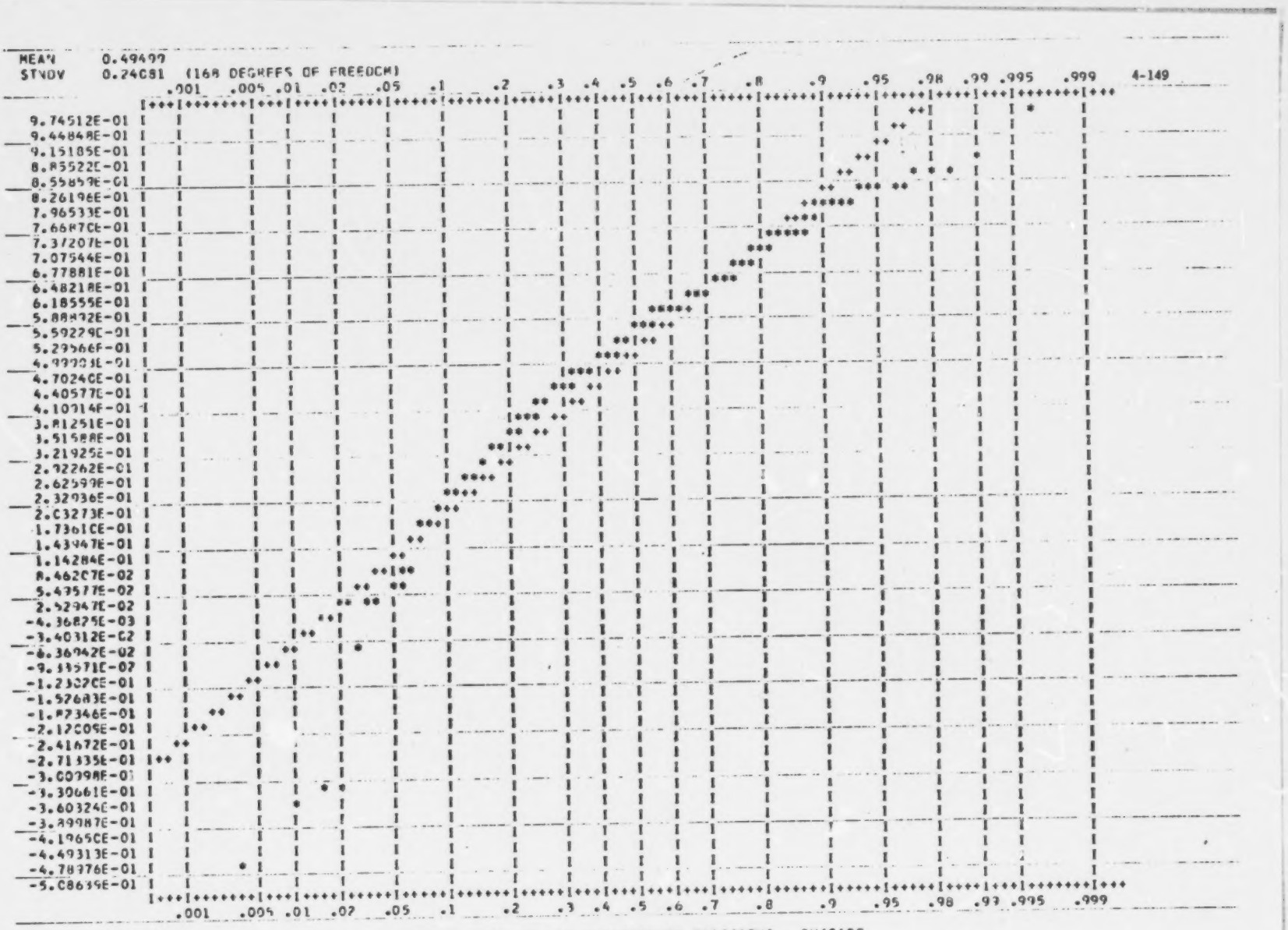


DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - CHICAGO
CO

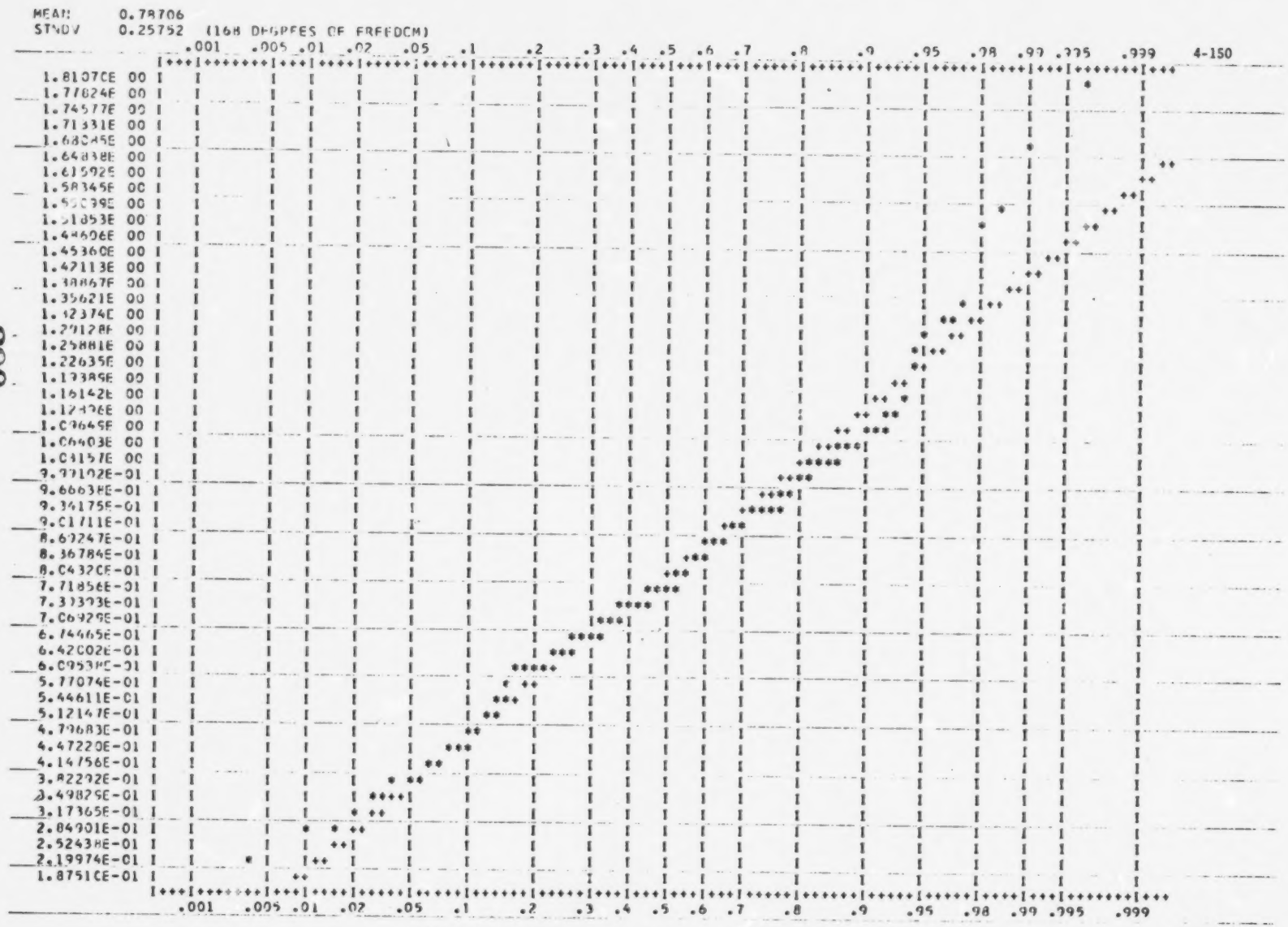
MEAN 2.66474
STNDV 0.12969 (164 DEGREES OF FREEDOM)



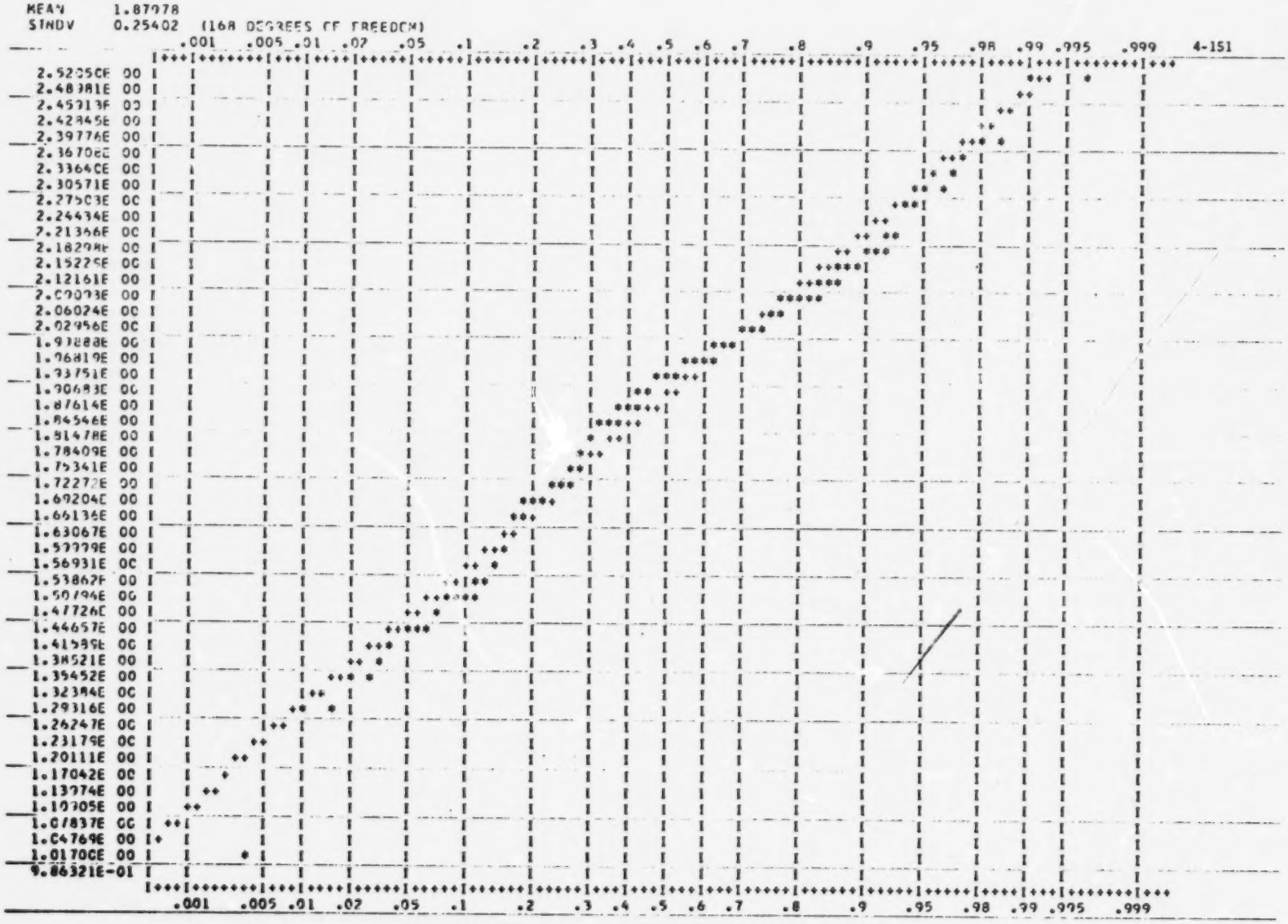
DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - CHICAGO
CO2



DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - CHICAGO
NOX

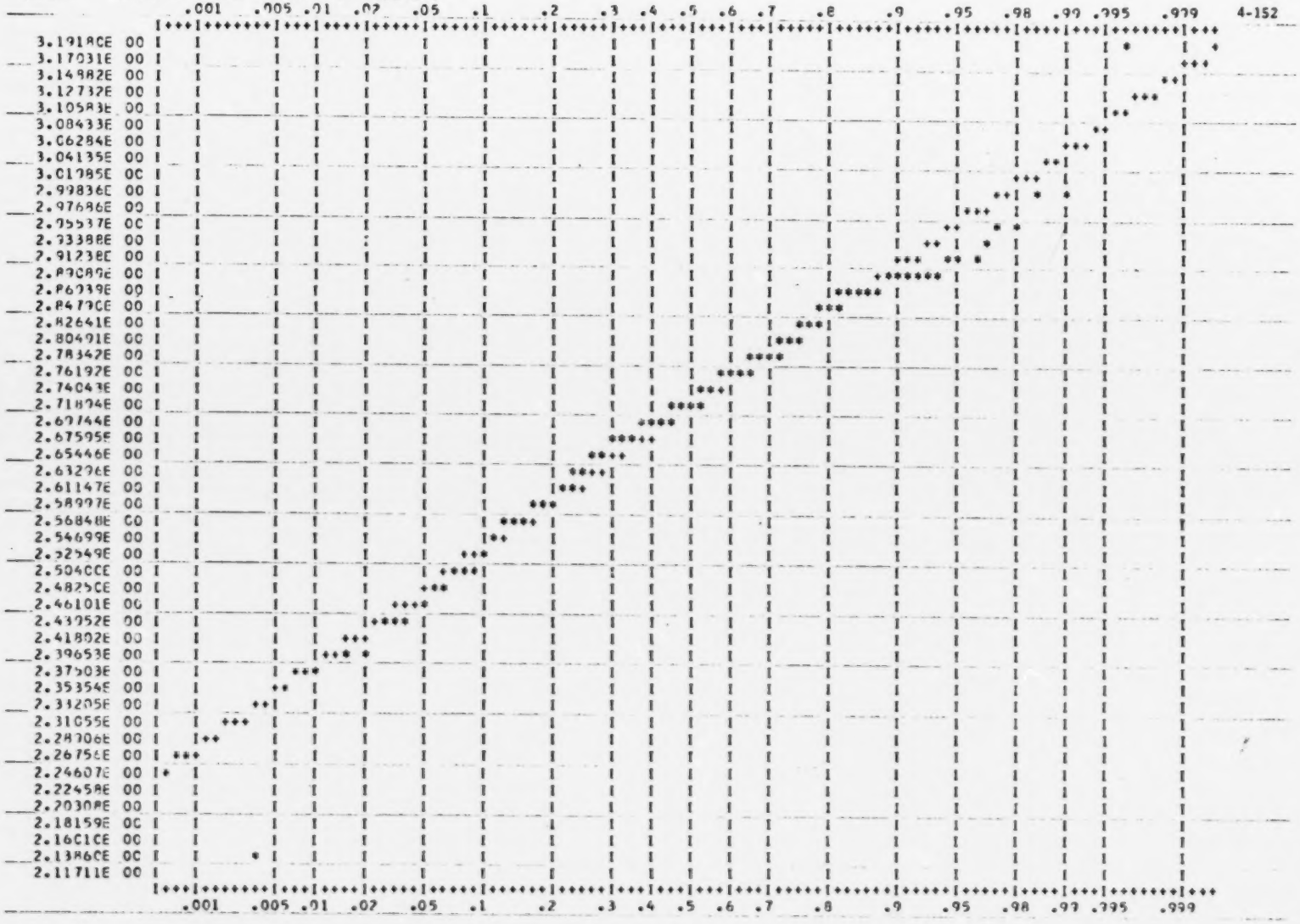


DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - HOLSTEN
HC



DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - HOUSTON
CO

MEAN 2.70818
STNDV 0.14290 (168 DEGREES OF FREEDOM)



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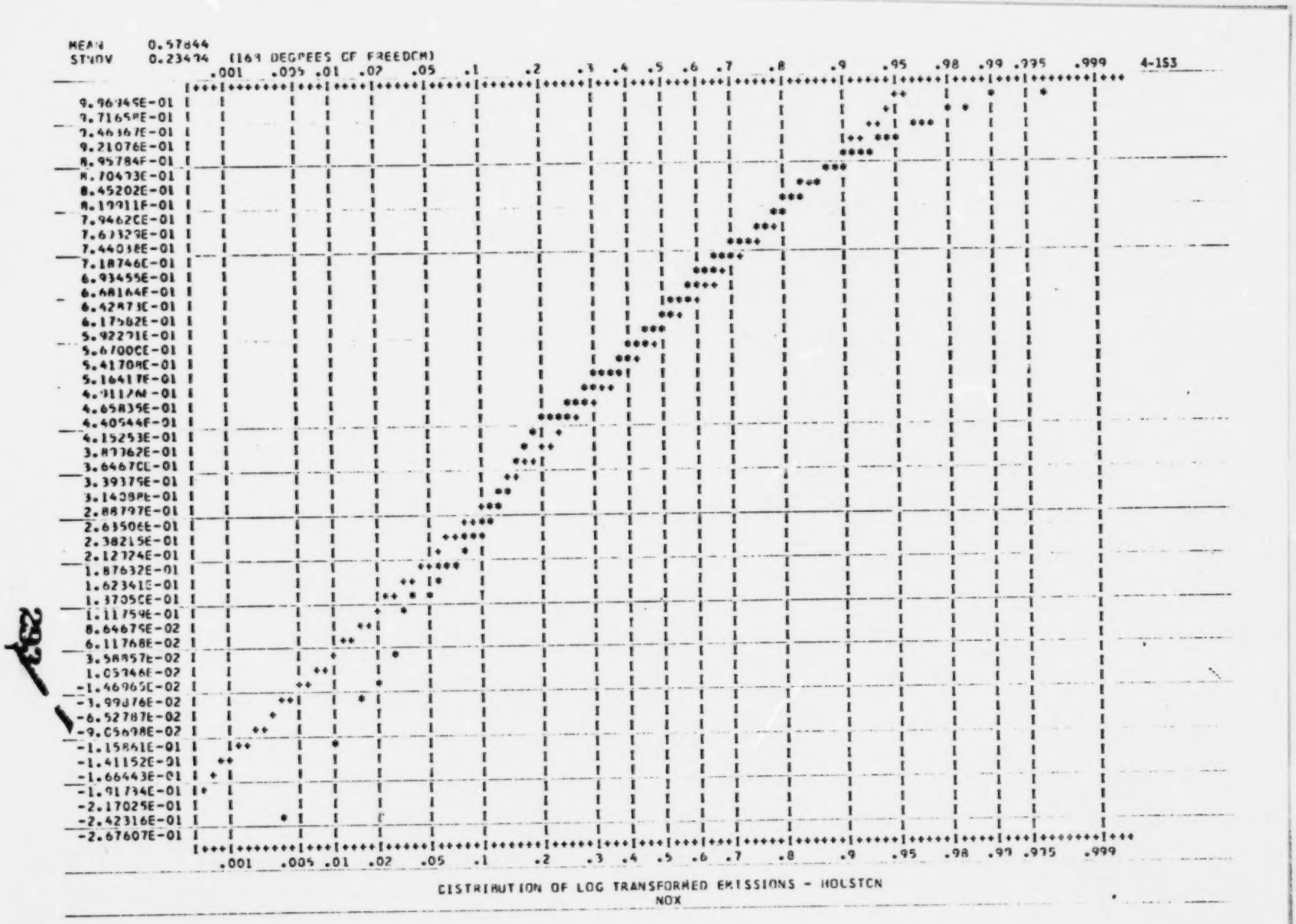
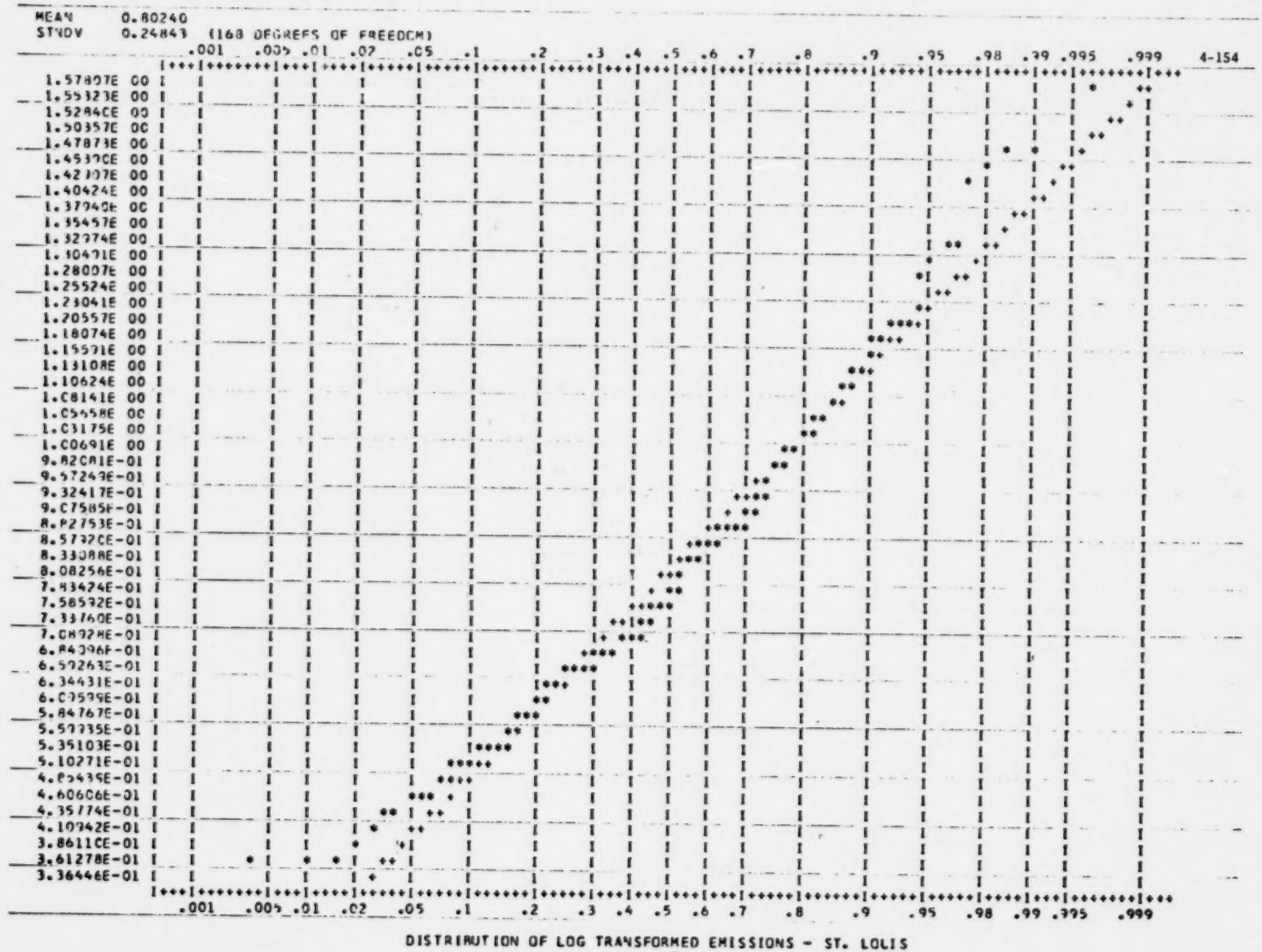
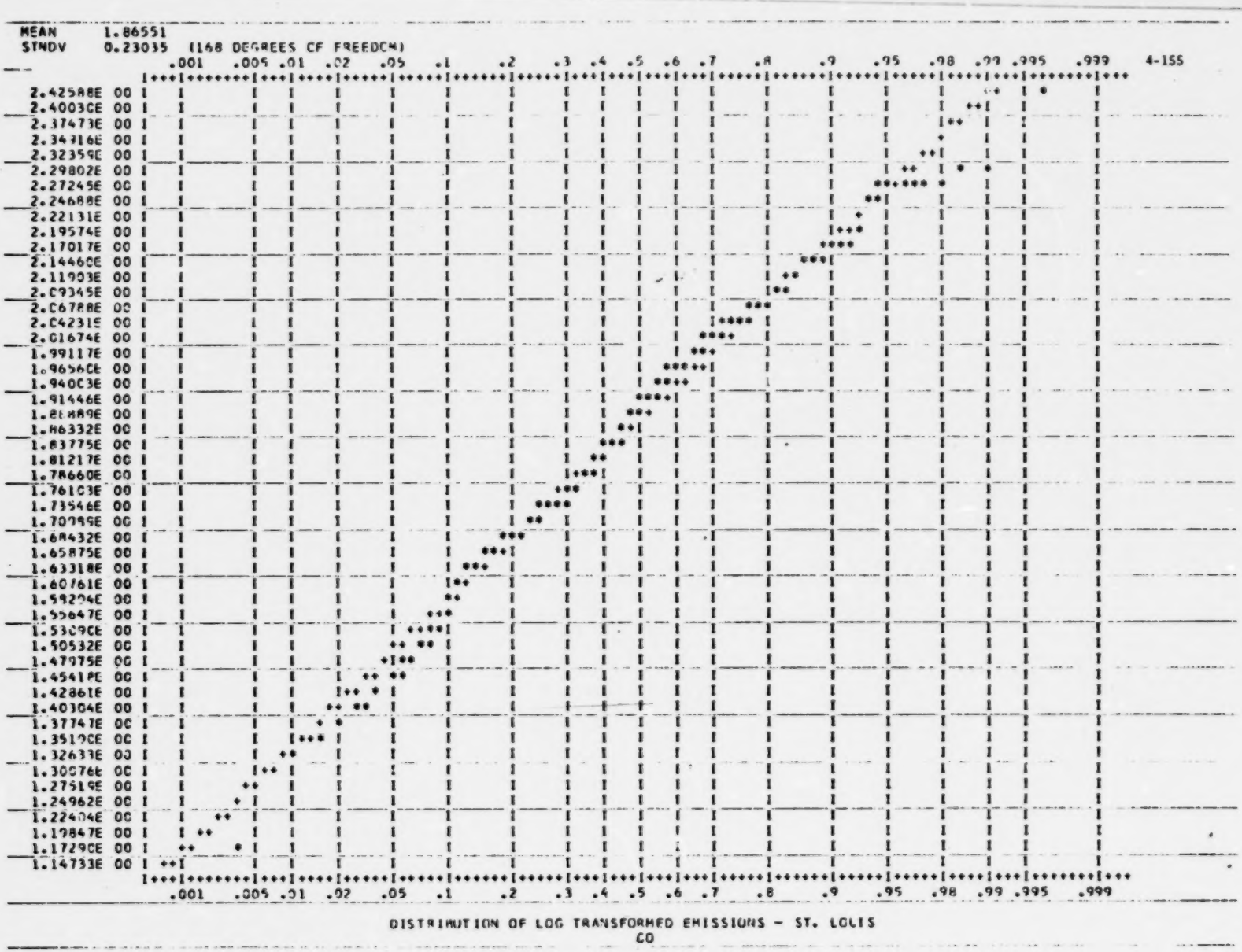
DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - HOLSTEIN
CO2



DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - HOLSTON
NOX

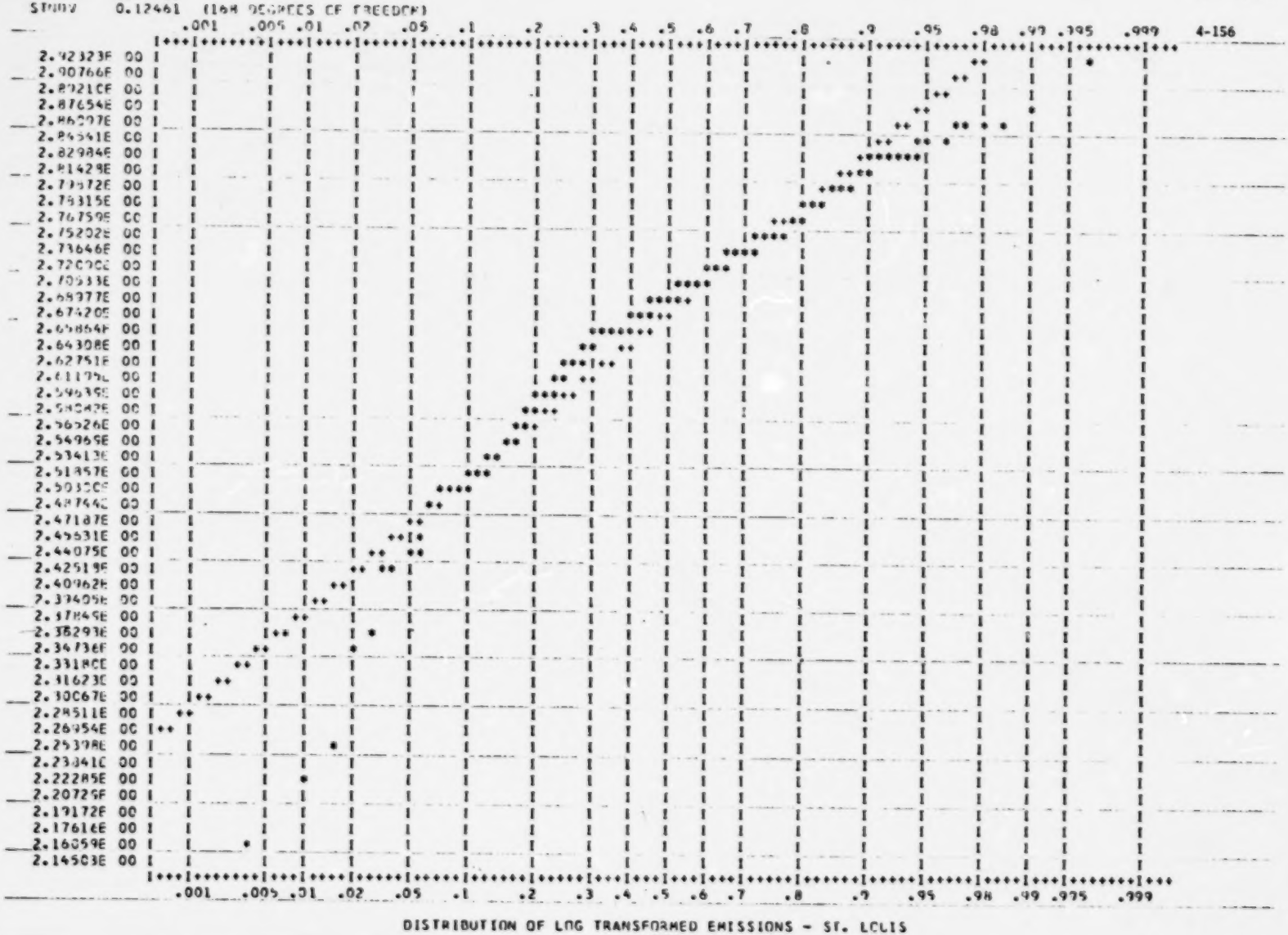


DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - ST. LOUIS
HC

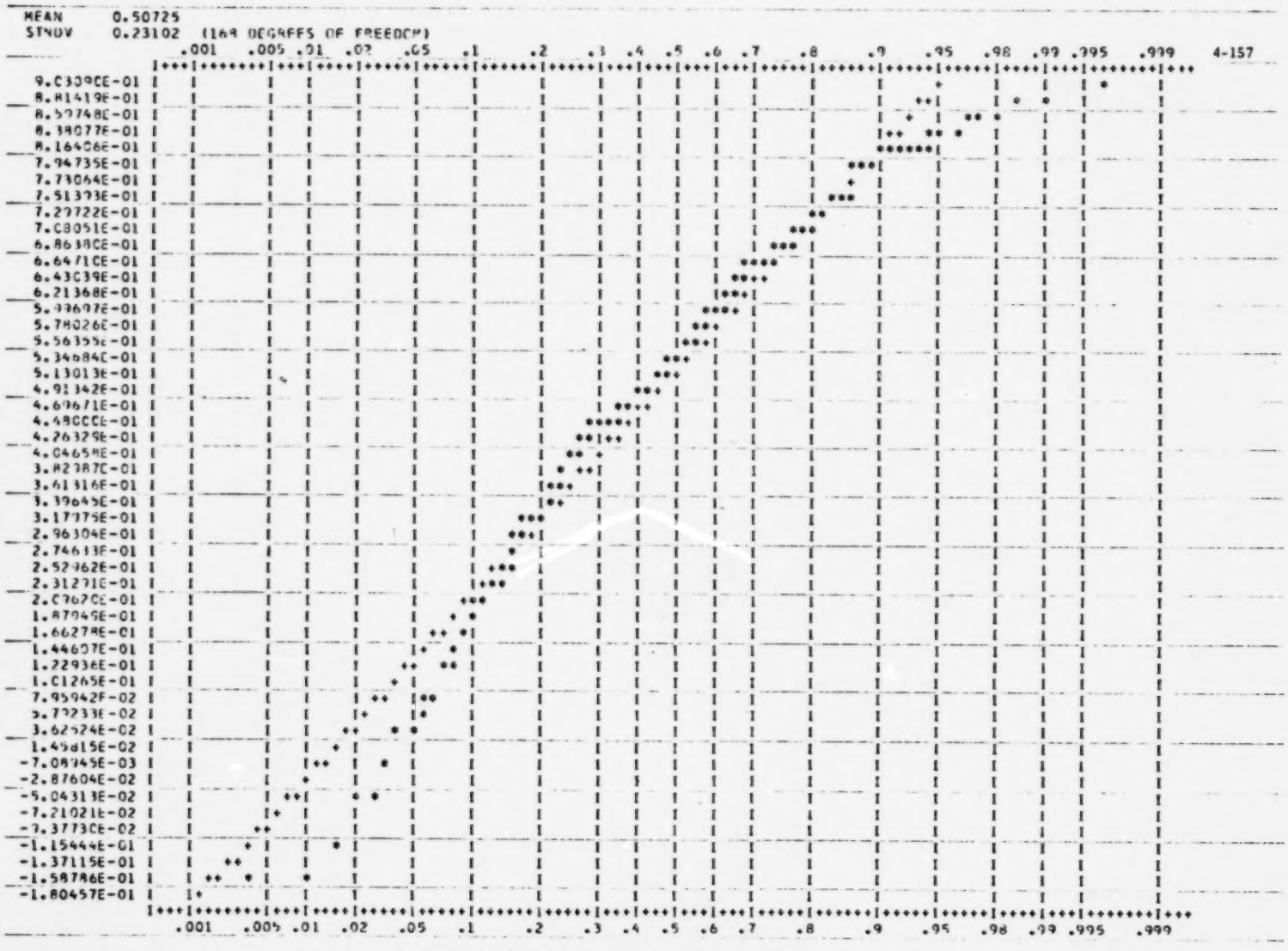


DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - ST. LOUIS
CO

MEAN 2.66712
STDDV 0.12461 (168 DEGREES OF FREEDOM)

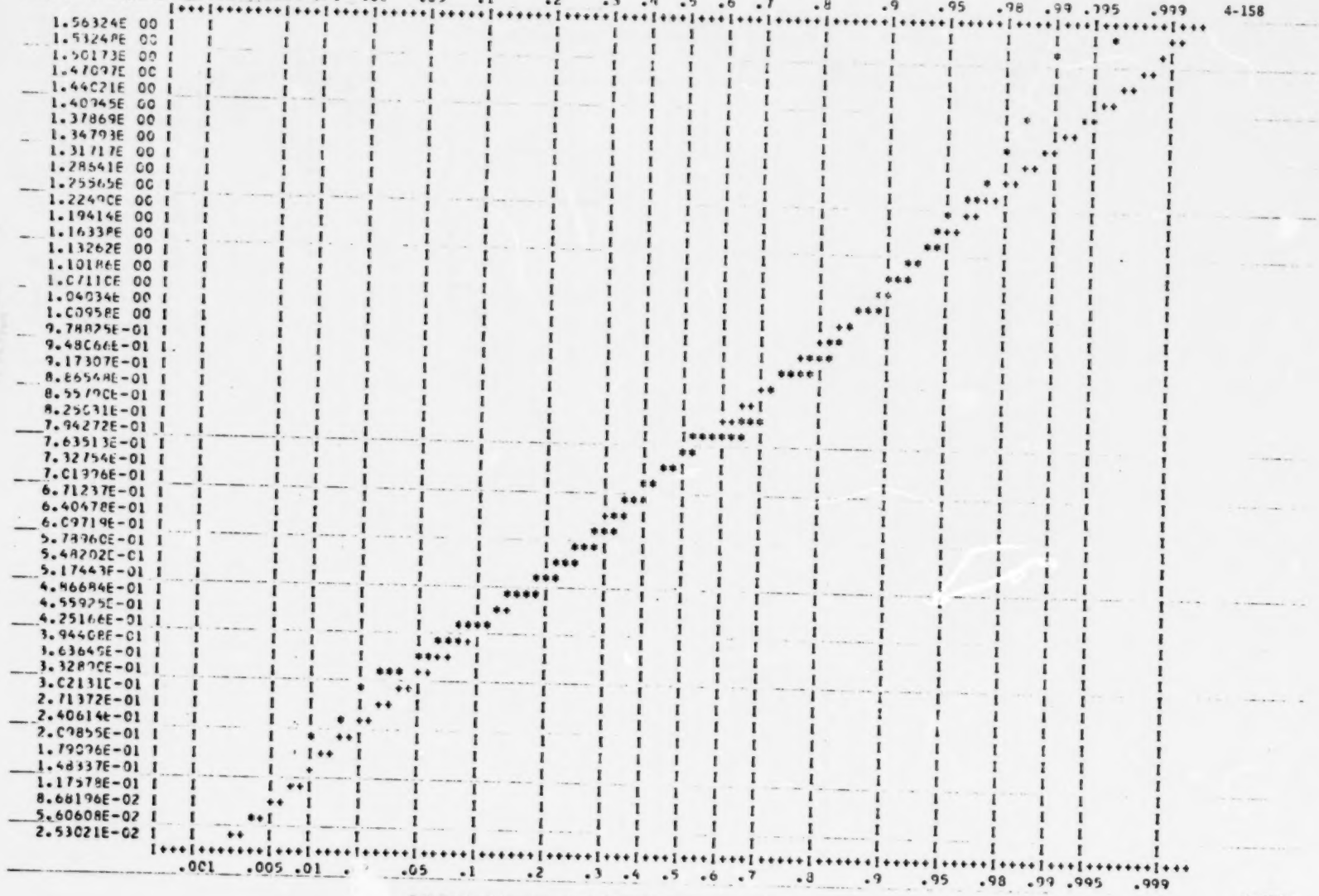


DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - ST. LOUIS
CO2

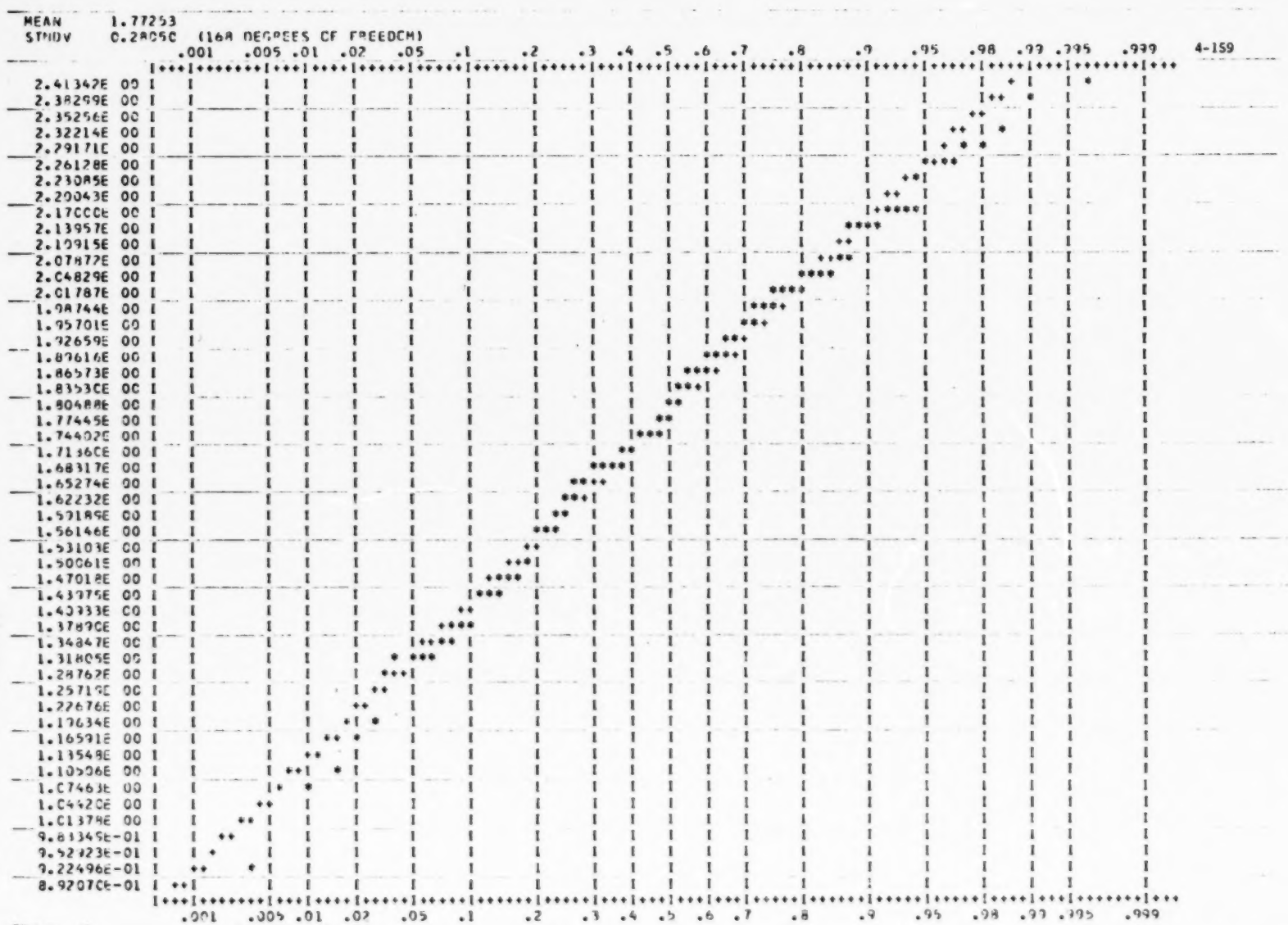


DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - ST. LOUIS
NOX

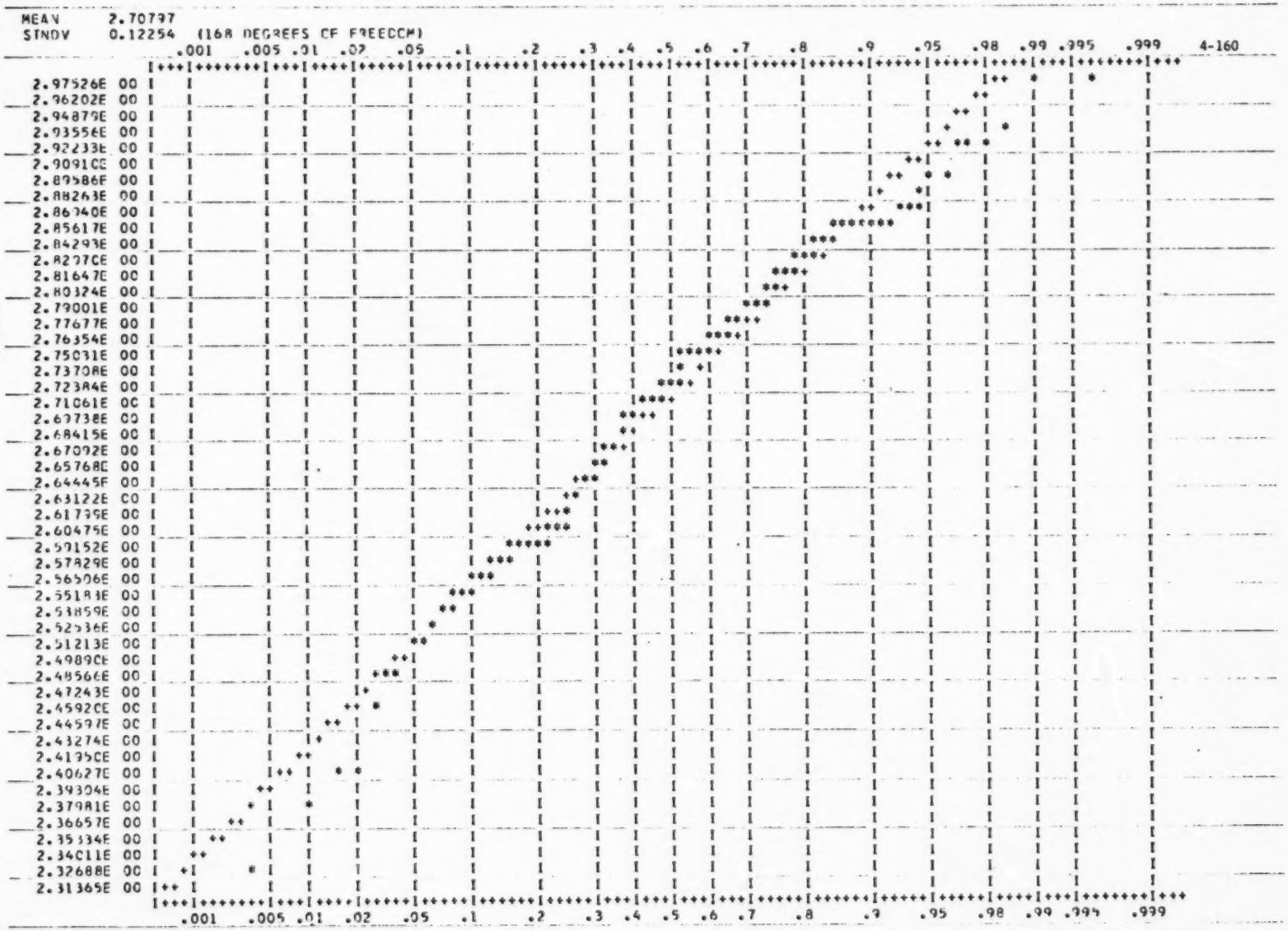
MEAN 0.73715
STNDV 0.25661 (168 DEGREES OF FREEDOM)



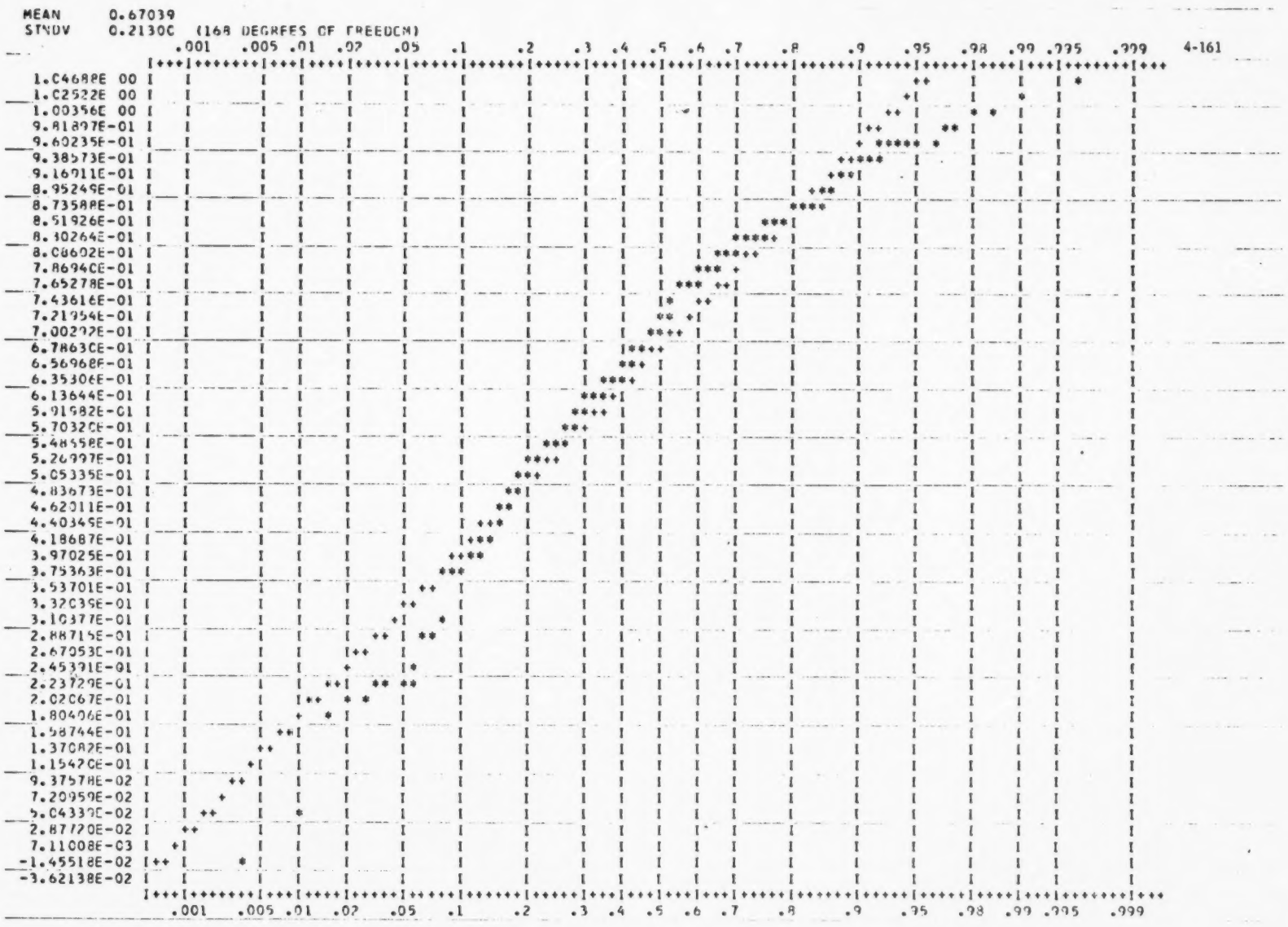
DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - WASHINGTON
HC



DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - WASHINGTON
CO



DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - WASHINGTON
CO2



DISTRIBUTION OF LOG TRANSFORMED EMISSIONS - WASHINGTON
NOX

* U.S. Government Printing Office: 1973--746-769/4166 Region No. 4